MARCH, 1955

Industrial FINISHING

Published Monthly in the Interest of Product Cleaning and Painting by Practical Publications, Inc., 1142 N. Meridian Street, Indianapolis 4, Ind.

Just as watchmaking is recognized as precision work, so is the formulation and production of uniformly high quality INDUSTRIAL PRODUCT FINISHES.

Indicative of the importance we place on research and development is the fact that one of every three LILLY employees is a graduate chemical engineer, chemist, or trained technician.

Supplementing the well-staffed company laboratories in Indianapolis, High Point, and Gardner are the multiple fellowship programs established by LILLY at Purdue University and North Carolina State College. These technical facilities are devoted exclusively to to research and study on specific finishing problems.

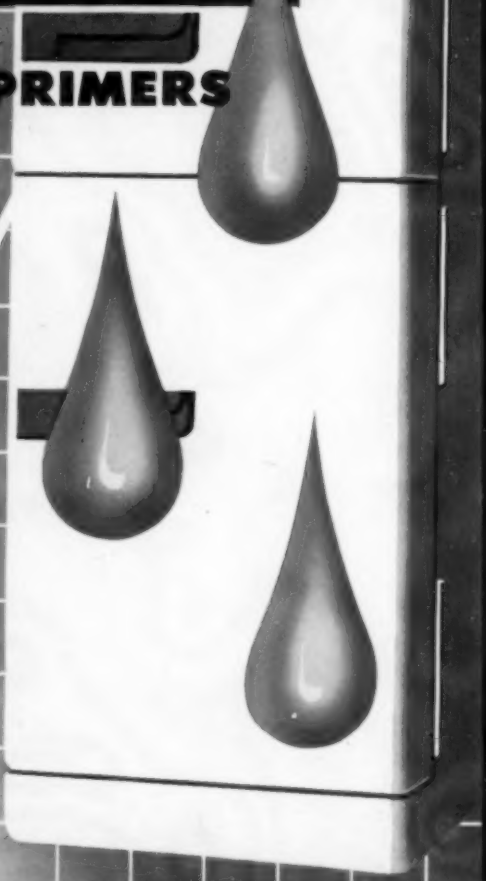
Such a combination of research and specialization enables LILLY to offer customers the finest technical service in the finishing field. We'll welcome the opportunity to put our facilities to work solving your finishing problems.

LILLY VARNISH COMPANY
666 S. CALIFORNIA STREET
INDIANAPOLIS, INDIANA

Serving industry with all types of product finishes and coatings
VARNISHES • LACQUERS • ENAMELS
METAL LITHO COATINGS • STAIN and WOOD FILLERS

Additional Companies at High Point, North Carolina and Gardner, Massachusetts

Enjoy New High Standards in Corrosion Resistance



WITH

IC APPLIANCE PRIMERS

The heart of any finishing system is the PRIMER.

In it rests the entire responsibility for ADHESION on which all other performance characteristics depend.

In it are the rust-inhibiting pigments or "galvanophobes" which destroy the eddy currents responsible for electrolytic corrosion.

It helps build film-thickness to improve general appearance and to fortify the impermeability of the system to water and oxygen—the two great allies of corrosion.

It adds toughness and durability because it may carry resins that would be prohibited in the top-coat by the limitations of color and gloss.

Whether you wish to air-dry or bake; spray, dip, or flow-coat; whether your substrate is ferrous or non-ferrous metal or plastic there is an INTERCHEMICAL CORROSION RESISTANT PRIMER to fill your need.

Interchemical knows a lot about corrosion. Perhaps you should know more about Interchemical. Won't you ask us in?

Interchemical Corporation

Finishes Division

FACTORIES: CHICAGO, ILLINOIS • CINCINNATI, OHIO • ELIZABETH, NEW JERSEY
LOS ANGELES, CALIFORNIA • NEWARK, NEW JERSEY • MEXICO CITY, MEXICO

In Canada, IC products are sold by AULCRAFT PAINTS LTD., Toronto, Ont., under its trademarks.

one of a series of advertisements on . . .

John L. Armitage and Company

organic finishes for industry since 1876

IN LOOKING through our customer files the other day we found some things we thought would interest you if you are concerned with industrial finishes. We found that we make over 400 different basic formulations and use about 1000 different raw materials in the course of a year. One customer had over 600 different colors! We have customers whose names are national "buy words"; we have some who represent small but vital cogs in the nation's industry. Some of our customers are industrial giants employing thousands. Some are small business at its smallest.

In business it is people that count and we are interested in our customers. We have one customer who has done business with us since 1890. Several of our best customers represent over 25 years of continuous purchasing. Approximately half of our accounts have bought from us for 15 years, and for a company that has doubled its volume of business since 1949, we think that that is a record to be proud of. Why? Because in a tough competitive field like industrial finishes we have established a relationship of confidence and trust that competition has not been able to break.

When an Armitage representative calls on you, please remember that anything from a sample to a carload order places you on that favored list of our favorite friends, the Armitage customer.

JOHN L. ARMITAGE ARMORCOID & CO.

Synthetic Enamels, Paints, Varnishes, Lacquers

245 THOMAS STREET · · · NEWARK 5, NEW JERSEY

Mutschler

uses custom finishes on Porta-Bilt Kitchens

Beauty, style and good taste are as important as durability in today's modern kitchen. That's why Mutschler Porta-Bilt kitchens, designed by Howard Cappel, make use of our custom finishes. Our specialists created a finish that enhances the original beauty of the design while maintaining high resistance to the wear and tear of daily use.

The Better the Finish, the Better the Buy

GRAND RAPIDS VARNISH CORPORATION

MAKERS OF THE FAMOUS Guardsman® *FINISH AND* Guardsman® *CLEANING POLISH*

GRAND RAPIDS, MICHIGAN

MARCH, 1955
Vol. XXXI, No. 5

BPA

A monthly magazine for company executives, production superintendents, process engineers, chemists, purchasing agents, paint shop and finishing department foremen of industrial plants where product surface cleaning and painting are major operations in the manufacture of parts and products of all kinds.

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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31

THIRTY-FIRST YEAR OF PUBLICATION

Testing New Paints for Wood. The National Paint, Varnish & Lacquer Association and the National Lumber Manufacturers Association are utilizing their combined technical abilities in the testing of paints applied to wood, to assure long life and utmost satisfaction to the consumer.

Special studies have been made on moisture condensation, including the extent of vapor transmission through interior and exterior paints, and how this vapor transmission affects adhesion of the paints to lumber and other materials.

* * *

Aluminum Products. The first gas-fired water heater to use an aluminum tank—The Ruud-Alcoa Alloy automatic water heater—was introduced recently by the Ruud Mfg. Co., Pittsburg, Pennsylvania.

The Ruud-Alcoa Alloy water heater marks a new use of aluminum in the home plumbing field, one of the light metal's most promising markets. In the new Alcoa Building, the domestic water system is equipped with aluminum pipe.

* * *

"Look-Out" is the name of a new all-angle adjustable wing mirror that converts your car's interior mirror to full rear and side view vision; provides wide-angle vision with full 180° adjustment on each wing; gives you view of the road behind and around. It fits all mirrors, see picture at right.

Improved Paints. New and tougher, water-resistant paints for interior walls, based on a vinyl acetate resin latex developed by Bakelite Co., provide increased resistance to aging. The ability to hold on to bright initial color, toughness and resistance to acids and alkalis during aging tests, is a distinctive feature of the newly developed resin latex.

* * *

Production Control. You are more likely to make a sound decision when you have the facts staring you in the face. This conclusion was reached by a prominent manufacturer after experience with the Productrol System. Productrol took facts buried in the company's files and brought them out into the open where production managers could see exactly how they stood at any given moment. They were able

Side mirror wings for rear vision mirror.

THIS is IT!!!

DOLVAR

BURN RESISTING

AIR DRY OR BAKE

WATER WHITE

• You will be hearing a lot about this new, outstanding catalyzed, clear synthetic finish for wood. High in solids. It is so tough you can't knock it off with a hammer! A burning cigarette will not even blister or mark it after two or three minutes. Positively will not cold-check, print, soften or pad-mark. Withstands alcohol, water, nail polish, lacquer thinners, etc.

NON-YELLOWING!!

Order a drum today—with a positive guarantee of satisfaction!

"From the start consider the Finish"

V. J. DOLAN & COMPANY, Inc.

Manufacturers of "Unquestionable Quality"

INDUSTRIAL FINISHES

1830 N. Laramie Ave. Chicago 39, Ill.

BErkshire 7-0100

1-COAT HAMMERS GOT YOU OVER A BARREL?

CALL US . . . WE'RE *Specialists*

SEA-LAC

POLYTONES

. . . are famous for their depth, durability and dependability. Just one coat does the trick—creating a realistic hammered pattern. Air-dry or bake—on wood, metal, plastic. Special polytones designed to meet your needs. Silver and colors.

DURALAC CHEMICAL CORP.
84 LISTER AVENUE, NEWARK 5, N. J.

to see at a glance which of a hundred orders were progressingg as scheduled They could spot immediately any order that had fallen behind, and take corrective action before it became critical.

* * *

Al.-Coated Fabric. An aluminum-coated fabric—for use in protective garments for industrial "hot jobs"—is now being manufactured by Minnesota Mining & Mfg. Co., St. Paul, Minn.

Protecting the wearer by reflecting radiant heat—instead of insulating against it—the new material is flexible and weighs half as much as other protective fabrics giving the wearer more freedom to work. A thin aluminum coating is applied on a light asbestos fabric base.

* * *

Mahogany Furniture. More mahogany bedroom and dining room furniture will be sold this year than any other kind, says the Mahogany Association. It bases its prediction on the strong showing mahogany made at the recent mid-winter markets where over a third of the 1955 case goods furniture displayed by manufacturers was mahogany.

The quality trend in furniture prompted manufacturers to use more mahogany this year because of its public acceptance as the finest cabinet wood.

* * *

What Foamglas Is. Foamglas is an all-glass thermal insulating material unlike any other insulation in structure and performance. It combines the two characteristics of the long sought-after "ideal" insulation; it is inorganic and has a closed cellular structure.

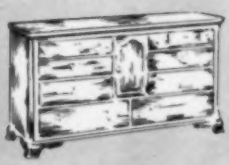
It is made by expanding molten glass about 15 times its volume and then cooling it. This results in a lightweight, rigid block containing millions

(Continued on page 128)

PROVEN

Precedent..

IS SAFER THAN HOPEFUL EXPERIMENTATION



For many years many of the most successful makers of furniture have relied on Spruance products to give them the kind of finishes that produce sales on the show-room floor.

Specifically Spruance Quality

STAINS • FILLERS • SEALERS
LACQUERS • SYNTHETIC ENAMELS
PRIMERS • PAINTS & VARNISHES

have proven themselves to be dependable — economical and uniform, under actual production schedules.

Why experiment — take chances — gamble — when you can use Spruance products and be sure of results?

Our widely experienced laboratory technicians and field service men are qualified and anxious to lend you all assistance.

May we hear from you?

THE GILBERT SPRUANCE CO.

Philadelphia 34, Pa. Winston-Salem, N. C.

For **FASTER** *surfacing, finishing, polishin*

YOUR CARBORUNDUM DISTRIBUTOR or salesman will prove that SAND SCREEN can save time and slash your costs in preparing surfaces, removing paint, sanding between coats, finishing and polishing. Call him today—he's listed in the yellow pages of your phone book under "Abrasives" or "Grinding Wheels."

FREE SAMPLE AND FOLDER! Write The Carborundum Company, Dept. IF 82-55, Niagara Falls, New York. In Canada: Canadian Carborundum Company, Ltd., Niagara Falls, Ontario.

. *use* **SAND SCREEN**

- On carbon steel, tough bronzes and other high tensile metals.
- On brass, copper and other low tensile metals.
- On non-metallic materials—especially plastics.

SAND SCREEN is abrasive all over—on *both sides!* And the removed material flows right *through* the open mesh, leaving the abrasive surfaces clean and free cutting.

LASTS 7 TO 15 TIMES LONGER Because it resists loading and glazing, and because you use both sides, SAND SCREEN gives 7 to 15 times longer life than conventional abrasive cloth. It folds and tears easily to any desired size . . . may be used wet or dry . . . by hand or machine.

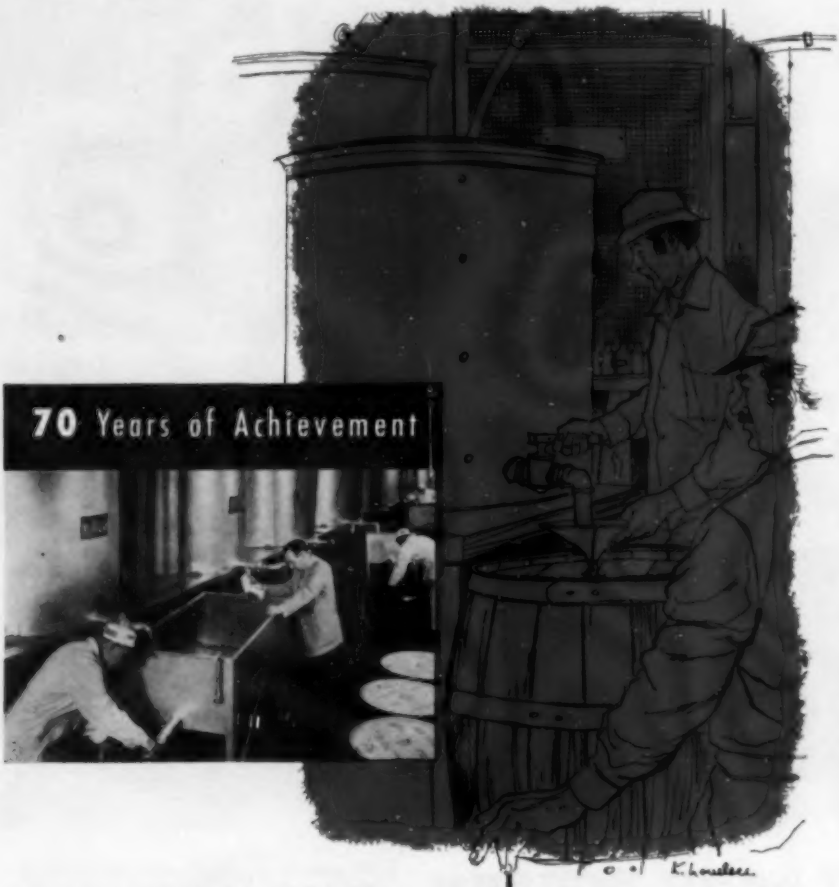
WIDE RANGE OF GRITS AND SIZES SAND SCREEN is available in silicon carbide grain from 100 to 600 grit and in aluminum oxide from 100 to 320 grit. It comes in 9" x 11" sheets, discs, cut sheets for oscillating or vibrating machines, and 25 yard rolls of various widths up to 18 inches.

CARBORUNDUM

REGISTERED TRADE MARK

. . . continually putting more **SENSE** *in your abrasive* **DOLLAR**

82-55



For 70 years TOUSEY has carefully and conscientiously filled small orders for paints, lacquers and varnishes—getting uniformity in color and quality to meet customers' specifications—giving prompt delivery. ★ This attention to detail and willingness to please has resulted in a steady and gratifying growth, a growth that has meant larger purchasing and manufacturing facilities, more trained personnel and the finest in finishes for TOUSEY customers.

Let us help with your finishing problems—write today.

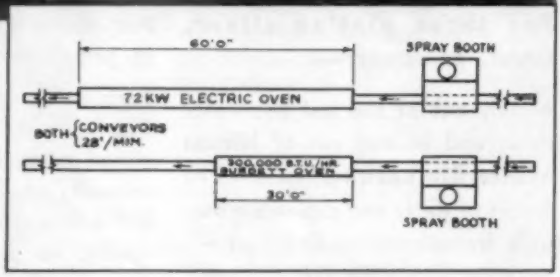
TOUSEY
520 WEST 25TH ST

TOUSEY PRODUCTS
DURACOTE for DURABILITY

VARNISH CO.
CHICAGO 16, ILLINOIS

Compare!

1. **Your paint finishing costs with these Burdett "Radiant Heat" costs.**
2. **Your present finish with this tougher finish from a Burdett oven.**



Evaluate this representative installation in a large steel fabricating company, which provides excellent comparison between a Burdett gas-fired "Radiant Heat" oven and an "electric" Infra-Red oven. This same comparison may apply to your operation.

Results . . .

Metal temperature is higher upon leaving the 30' Burdett "Radiant Heat" Oven than upon leaving the 60' electric oven. This is your proof of greater rate of heat transfer in the Burdett Oven, and with only ½ the oven size. Everyone is cost conscious and only Burdett "Radiant Heat" can produce these results.

LET US PROVE THIS

By actually testing your product and finish in our laboratory oven.

	Burdett Gas Fired "Radiant Heat" Oven	Electric Drying Oven
Operating Cost	$0.21 Per Hr. (Based on Chicago rates)	$0.21 per Hr.
Oven — Input	300,000 BTU/Hr.	72 KW/Hr.
Oven — Length	30'	60'
Oven — Width	4'	4'
Conveyor Speed	28'/min.	28'/min.
Finish	Tough	Satisfactory
Bake	Thorough	Fair
Kind of Paint	same	
Kind of Production	same	
Type of Operation	continuous	

Write for our recommendations on your finishing system needs

BURDETT
MANUFACTURING COMPANY

3425 West Madison Street, Chicago 24, Illinois

DETROIT PHILADELPHIA NEW YORK CLEVELAND DALLAS

Also Manufacturers of "Radiant Heat" Systems, Ovens, Heaters, Air Make-Up Units, Spray Booths and Washers

IN AND OUT

Is All It Takes To—

• DRY

• PROTECT

For those plating silver, brass, or copper—

Merely out of the last hot water rinse, and in and out of Nikolas **Water Dip Lacquer,** removes all traces of water and deposits a durable transparent coating that will resist fingerprinting, tarnishing and mild scratches that have previously involved unnecessary rejects.

For those using plated parts in production—

Parts finished with Nikolas **Water Dip Lacquer** assure you of untarnished parts, less rejects, and the necessity of ultra careful handling. If the final operation calls for soldering, no preparation is necessary, as the coating provides a chemically clean base metal that assures perfect bonds.

FOR COMPLETE INFORMATION ON

WATER DIP LACQUERS

CALL, WIRE OR WRITE

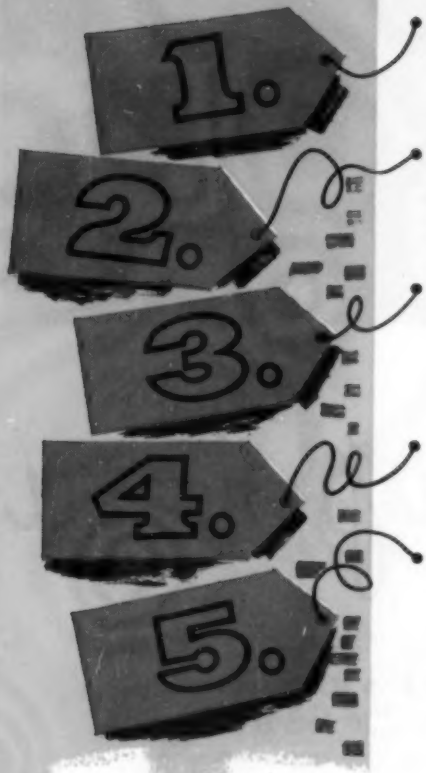
G. J. NIKOLAS & CO., Inc.

Manufacturers of Finest Lacquers Since 1895

2850 WASHINGTON BLVD.
BELLWOOD, ILLINOIS

33 GRAND ST.
BROOKLYN, N. Y.

Do your present lacquer solvents meet these Ketone advantages...?



High purity . . . *at no extra cost.* You add the latent solvents *you* prefer.

Unsurpassed ease of formulation—for both nitrocellulose and vinyl types.

Gives solutions of exceptionally high solids content—or high diluent content, both aromatic and aliphatic.

Imparts excellent flow, blush resistance, high gloss.

Price advantage, too! Lower specific gravity favors *you* when you buy by the pound and sell by the gallon.

WRITE FOR THE COMPLETE STORY!

These five important advantages are yours when you use Shell Ketones. Lacquer solvent systems based on Ketones have so many inherent advantages they have become standard with the nation's foremost formulators of both nitrocellulose and vinyl lacquers.

The Shell "quality group" of solvents includes MEK, MIBK, MIBC and IPA . . . for maximum flexibility in formulating. Ask your Shell Chemical representative why Ketones are your best solvent buy.

SHELL CHEMICAL CORPORATION

CHEMICAL PARTNER OF INDUSTRY AND AGRICULTURE

380 Madison Avenue New York 17, New York

Atlanta • Boston • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco • St. Louis

IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited • Montreal • Toronto • Vancouver

perfection in protection

Nesco's (*) new Kitchen Ryte Decorative Ware in "House and Garden" colors is selling because of its unusual eye catching appeal.

NATIONAL AFFILIATES' KOROFLEX finishes supply the colors for this eye appeal — equally important, they meet Nesco's rigid application and fabricating requirements.

* Nesco, Inc., Milwaukee, Wis.

FOR FURTHER INFORMATION Contact **YOUR NEAREST NATIONAL AFFILIATE**

...with Koroflex

THE LITHO COATING WITH THE THREE-WAY STRETCH

These tough, durable roller coating enamels are formulated to adhere to metal surfaces during the severe fabrications of the product.

Other KOROFLEX finishes are available for food packs, closures, and metal containers of all types and sizes.

NATIONAL AFFILIATES

ILLINOIS PAINT WORKS
Chicago, Ill.

PACIFIC PAINT & VARNISH CO.
Berkeley, California

BENJAMIN FRANKLIN PAINT & VARNISH CO.
Philadelphia, Pa.

DeSOTO PAINT & VARNISH CO.
Garland, Texas

CAROLINA PAINT & VARNISH WORKS
Greensboro, N. C.

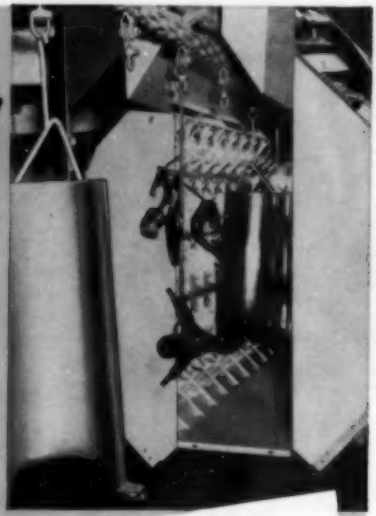
REQUEST:

What can we do about costly drying operations?

REPLY:

REDUCE TIME AND EXPENSE WITH A FOSTORIA RADIANT OVEN

Fostoria infrared puts the heat on the product . . . instantly. No wasteful "warm-up;" accurate heat control. You save money because drying is faster and more efficient.



CASE HISTORY:

The above photo was taken at the Cream Separator Division of International Harvester at Richmond, Indiana. Operation shown is baking enamel finish coat on parts.

A few years ago, these parts were baked with a convection oven. It occupied 480 square feet of floor space and required a baking cycle of one hour.

The company now uses a Fostoria Radiant Oven. This unit costs less to buy. It is only eleven feet long, and bakes thoroughly in just eleven minutes.

Does this give you an idea? If there is a baking, heating or drying operation in your plant, it can be done faster, cheaper, better, and in less floor space with a Fostoria Oven.

Find out about a specially-designed Fostoria Oven for your requirements. It'll pay for itself in a matter of months. Just contact our representative or write directly to the company.

8901

Write for the free booklet, "How Thousands of Plants Cut Costs."

INFRA-RED fostoria SYSTEM

THE FOSTORIA PRESSED STEEL CORPORATION, DEPT. 321, FOSTORIA, OHIO

The READER SERVICE *Department of*

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Offers you additional information on the materials, equipment, accessories and supplies advertised in this issue. Just fill in the name of advertiser and page number of advertisement in question, on the card below; print or type your own name, your company's name and address, detach and mail. No postage required.

For further information and copies of manufacturers' literature mentioned in the editorial departments, use "Reader Service" return card in the rear section of this issue.

Industrial FINISHING — March 1955 Issue

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(NAME OF ADVERTISER) (PAGE NO.)

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Signed.....*Title*.....

Company Name.....

Street Address.....

City.....*Zone*.....*State*.....

At Your Service

Many inquiries come to INDUSTRIAL FINISHING Magazine for information about technical problems, methods and processes; and for sources of supply for materials, equipment and supplies to be used in connection with surface preparation and conditioning, paint application, sanding, paint drying and baking, rubbing, polishing, etc.

Surfaces to be completely or partially coated for protection, decoration or for any other purpose, include components and articles made of metals, plastics, woods, and composition materials; also paper, leather, rubber and fabrics.

The services of testing laboratories, finishing consultants and special technicians are often requested. These inquiries are promptly answered. As a result, new products, materials and sources of information are continually being uncovered; valuable contacts are made and timely suggestions for future articles to be published are developed.

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1142 N. Meridian Street

Indianapolis 4, Ind.

Partial View of the Home of Barker Lacquer Thinners

LACQUER THINNERS

"Thirty-six Million Gallon Reasons

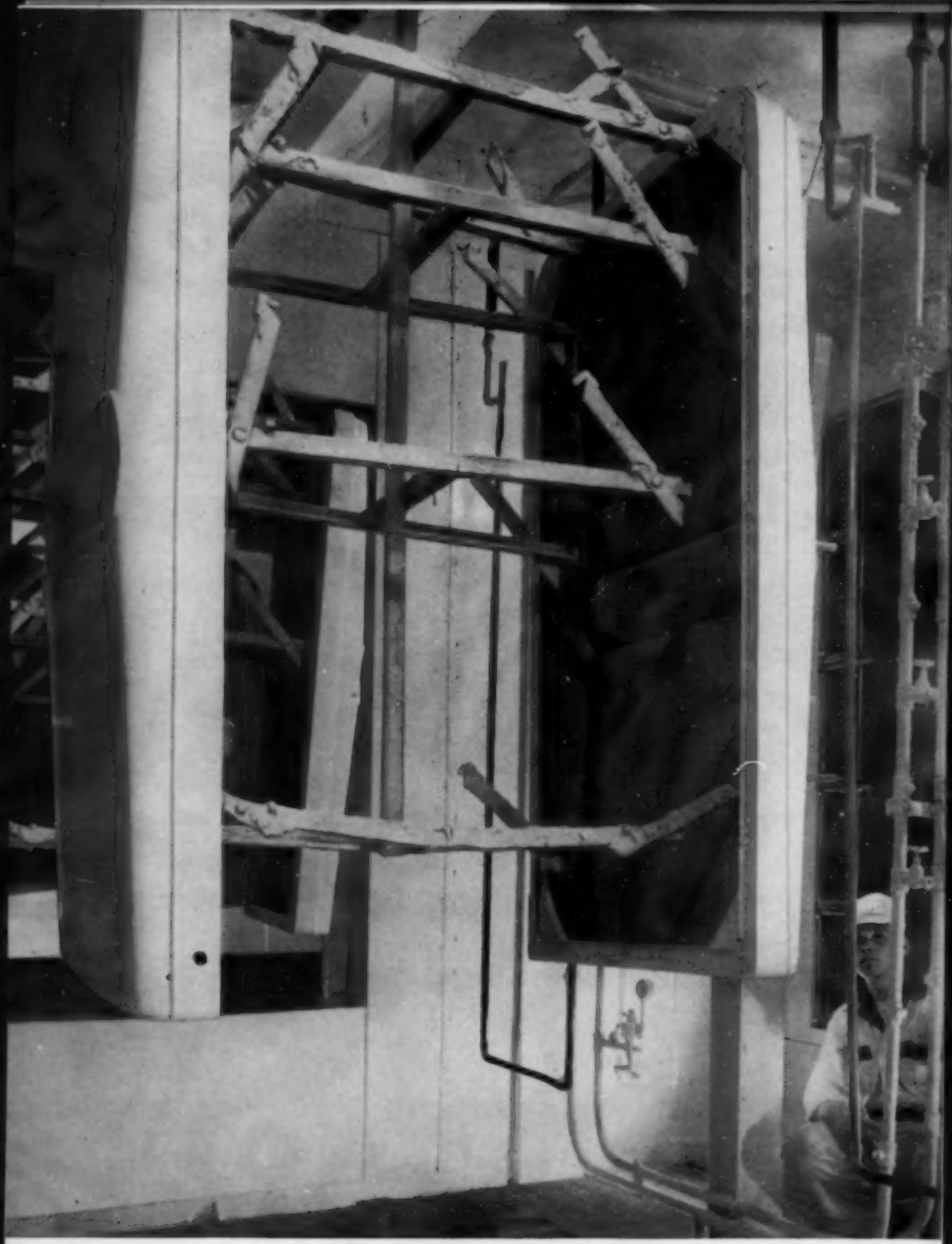
~~**"Twenty-five Million Gallon Reasons**~~

Why We Lead the Field"

BARKER CHEMICAL COMPANY

One of America's Largest Manufacturers of Lacquer Thinners

700 EAST 138TH STREET • CHICAGO 27, ILLINOIS



SALES OFFICES AND FACTORIES: San Francisco, Los Angeles, Chicago (Nubian Division—1855 North Leclaire Avenue),

FASTER FINISHING FOR FAMOUS FREEZER

The completion of a new automatic finishing line at Amana Refrigeration Inc. has given this pioneer builder of upright freezers many finishing advantages.

The switch-over to an electrostatic spraying system speeded production, reduced rejects and eliminated several costly finishing problems.

Many of the recommendations which have proved so successful were made by Glidden Technical Servicemen. This is consistent with the type of start-to-finish help G.T.S. provides in improving finishing procedures, increasing product quality and lowering finishing costs. Call on Glidden *first* for all your finishing needs.

THE GLIDDEN COMPANY

INDUSTRIAL FINISHES DIVISION

11005 Madison Ave. • Cleveland 2, Ohio

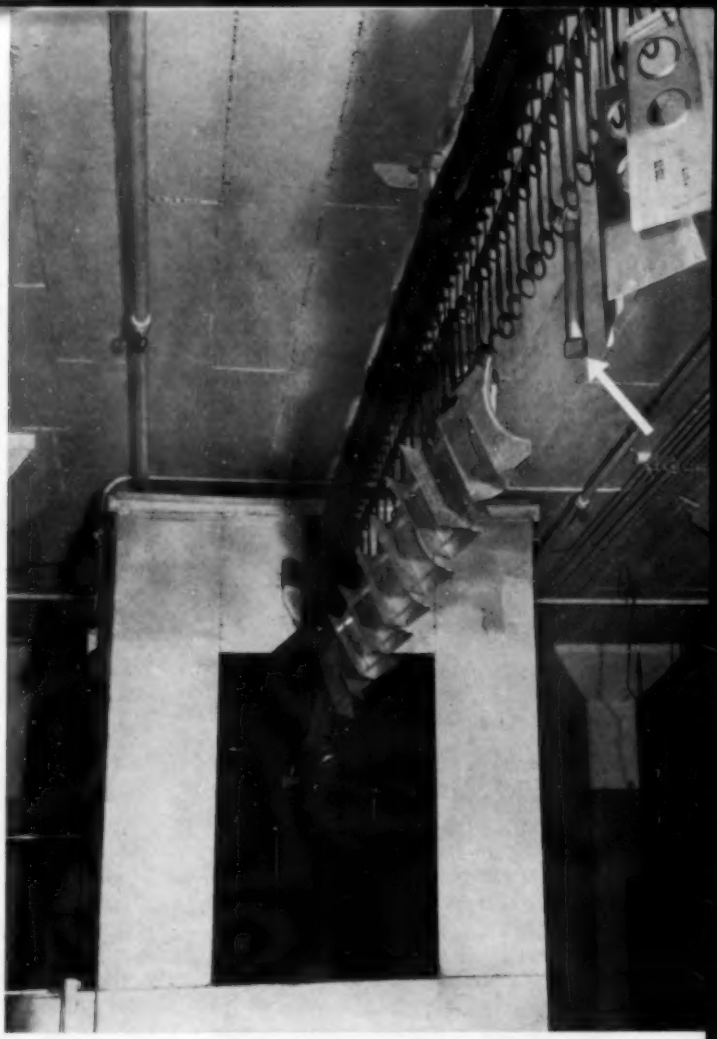
Minneapolis, St. Louis, New Orleans, Cleveland, Atlanta, Reading. Canada: Toronto and Montreal

Douglas Installs Longest *Automatic Painting Line*

Cleaning, surface conditioning, flow-coat priming and oven drying . . with numerous efficient techniques and methods, including clamp-type hangers, sealed tubes to carry orders, identification marks for parts in process, automatic safety facilities, etc.

By A. L. SUHRE

General view in sheet metal department showing one of the conveyor loading stations. Notice the sharp upward slant of conveyor from floor to ceiling. Notice also the mesh enclosed safety corridor through which conveyor travels near the ceiling.



Here parts are entering the flow coater to be prime coated. Arrow points to small tube containing sealed orders, which precedes each batch of parts on conveyor.

IN THIS MODERN AGE OF superlatives, the terms "world's largest," "world's smallest," "world's tallest," etc., have been shorn of their glamour and effectiveness due to overusage. But when industrial finishing men hear that the El Segundo Division of Douglas Aircraft Co. has installed and placed in operation the longest continuous paint line of its type found anywhere in the world, it should at least spark a mild degree of interest.

Let's check into a few basic facts about this huge installation. The single continuous conveyor chain and its monorail track are 2100-ft. long. Processing chambers, arranged in the sequence of their use, merge into a continuous tunnel 378-ft. in length. The 4-in. spaced

integral hangers on the conveyor chain will hold 6300 parts at one time. With 6300 parts hung, and with the conveyor traveling at its maximum speed of 30-ft. a minute, 5400 parts can be handled and primed within an hour.

Processing is fully automatic from beginning to end. When primed parts reach the unloading platform or dock they are ready for assembly into an airplane.

This paint line was installed at the company's B-6 Torrance facility, Torrance, Calif., where, in addition to production for several types of military airplane models, parts for the Navy's now famous supersonic Douglas F4D "Skyray" jet interceptor airplane are being finished in volume.

For convenience of description, this new paint line may be broken down into two components—the conveyor itself and the processing chambers with their associated equipment.

The conveyor chain is a single strand, forged link construction with in-built hangers at 4-in. intervals. It is suspended from an I-beam monorail conveyor track by means of U-bracket hangers incorporating a travel pulley on the inside of each "U" leg. Despite its great length and level-changing undulations, the chain is powered by a single 7½-hp. motor drive located overhead, just ahead of the drying oven. Layout of the track with all of its curves was carefully engineered to avoid building up excessive travel drag at any one point. The conveyor part of the installation was designed and built by conveyor engineers.

Processing Facilities; Nine Chambers End to End

Processing facilities are composed of nine separate chambers set end-to-end to constitute a single straight-line "tunnel" 378-ft. long. Each chamber is long enough so that parts being processed are exposed a sufficient length of time, even when the conveyor is traveling at its top speed (30-ft. per minute). Each chamber is automatic in operation insofar as its own particular purpose is concerned, and is correlated with system operation whenever such correlation is necessary.

The processing chambers, in the order of their occurrence, are:

1) Alkaline spray cleaner.
2) Hot water rinse (spray).
3) Cold water rinse (spray).
4) Chemical surface treating.
5) Rinse (spray).
6) Dilute chromic acid rinse.
7) 60-ft. drying oven.
8) Cooler (cold air blast type).
9) Flow coat chamber.

Currently, Alodine No. 1200 is being used in the surface treating chamber, though pilot runs have shown that other MIL-C-5541 materials can be successfully employed with the same setup and at the same conveyor speeds.

Automatic Flow Coat Priming; Safety Features

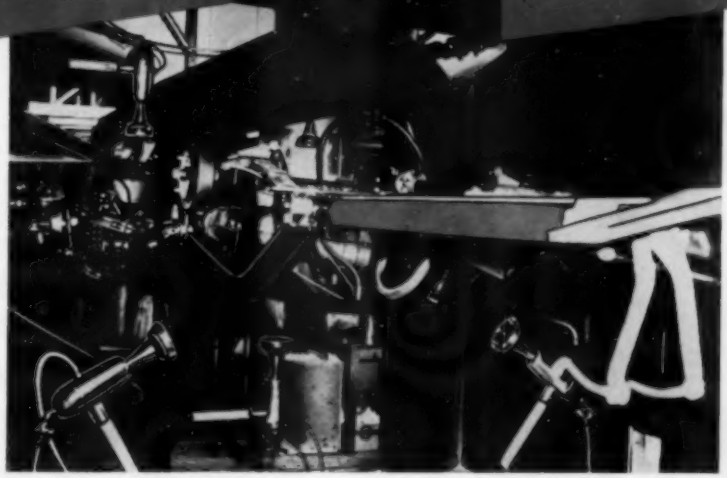
The flow coat chamber is entirely automatic in operation. Approximately 40-gallons of thinned primer are carried in the sump. Agitation is provided by pumps that force the primer through the flow coat nozzles. Safety is pro-

9 TIMES MORE PAINT MILEAGE ON AUTOMOBILE CHASSIS!

STUDEBAKER

gets a better, more uniform, paint job on chassis as production is increased and finishing costs are cut substantially with

RANSBURG NO. 2 PROCESS Electrostatic Spray Painting*



● When Studebaker Division, Studebaker-Packard Corporation switched to Ransburg No. 2 Process of Electrostatic Spray painting on their automobile chassis, paint mileage was increased 9 times.

By simply putting the paint where it's supposed to go, Studebaker cut daily paint consumption on the chassis production line from 14½ drums to 1½ drums. And, still they are painting 6 more chassis per hour with the No. 2 Process.

In addition to getting better, more uniform coverage with the asphalt-type coating, paint and labor costs were cut 70¢ per chassis. In eliminating the former set-up with 2 water wash booths and 12 automatic spray guns, they save nearly 1000 square feet of badly needed floor space.

Another on-the-job-example of the unmatched efficiency of the Ransburg No. 2 Process in which quality of the work is improved . . . AT LESS COST!

* *Studebaker also uses the Ransburg method to apply a heavier and more uniform primer surfacer on automobile bodies.*

Whatever your product—large or small—if your production justifies conveyorized painting, it's possible that one of the Ransburg electrostatic processes can do the job better, with substantial savings to you. We'll be glad to tell you about complete Ransburg services. WRITE TO DEPT. I.

Ransburg **ELECTRO-COATING CORP.**

Indianapolis 7, Indiana

RANSBURG

Close-up of the conveyor loading station in the sheet metal department. Hanger hook spacement is 4-in., but the Douglas-designed friction type hangers are spaced on these conveyor hooks according to the size of the part being hung.

vided by an in-built fire protection system. If fire should occur, automatic switches will stop the conveyor and shut off all fans and sources of heat. The primer flow is automatically cut off. Simultaneously, all sumps and closed drains are flooded with carbon-dioxide (CO_2) gas.

In this layout, the line-up of processing chambers is located in a sub-floor basement structure apart from regular production areas. The long room in which the chambers are located is entirely concrete lined (walls and ceiling) as an additional safety measure.

The Drying Oven Has Automatic Safety Too

After the conveyor leaves the processing chambers, it then rises through the floor and moves upward into a drying oven in the department above. Here the primer coat is thoroughly dried. This oven is operated at 150° F. To prevent overheating of primed parts, with

34¢ per part may be economical!

1²/₃¢ per part may be too much!

You may be looking at cleaning department costs and saying: "that looks about right . . . it used to cost us a lot more!" Would you like to know, for sure, that your cleaning costs are just as low as they can be . . . with excellent results?

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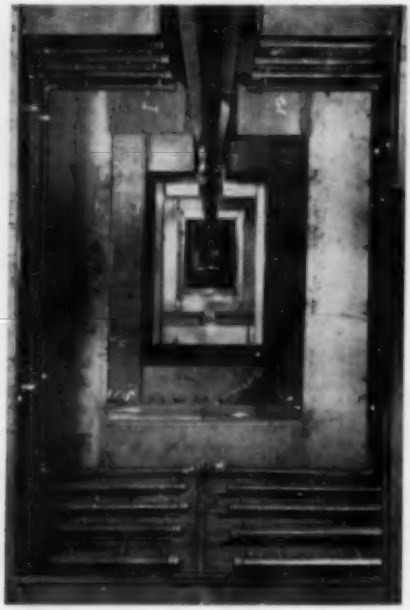

Looking into the entrance end of the 378-ft. series of processing chambers.

possible adverse effect on the base aluminum alloys, an automatic switch cuts off the drying oven heat supply whenever the conveyor is stopped for loading. Beyond the drying oven, the conveyor proceeds to an unloading dock and then on around the sheet metal section.

The conveyor dips down to five different loading stations within the sheet metal department. The chain may be stopped at any one of these stations to facilitate loading of difficult parts. Duplicate controls at each station make this possible. The dip of the conveyor to and from the loading stations is as abrupt as is possible to minimize overhead obstruction in working space. All overhead portions of the conveyor are enclosed in a protective screen to prevent accidents in case a part should slip from its holding clamp.

Narrow Conveyor Travel; Baffles Between Chambers

Many special features were worked out and included in this system during the course of its design and installation. Vertical clearance in the processing chambers permits parts up to 6-ft. long to be suspended from the conveyor chain, yet very small parts can be processed just as effectively. Inasmuch as these parts are always suspended edge to edge rather than crosswise under the conveyor chain, width clearance requirements are comparatively small. This has made it possible to install baffles between certain of the processing chambers where a carry-over or mixing of solutions would be undesirable. These baffles have an opening just large enough to permit passage of the largest parts processed.

Clamp Type Spring Hangers Hold Parts to Conveyor

Douglas engineers went "all out" to design specialized clamp-type hangers for the parts being processed. Several metal alloys were tried until one was found that is completely resistant to all processing solutions yet it still retains its effective spring action. Many different degrees of clamping pressure were tried out to find how much is really needed to hold the work and yet not be troublesome for manual loading and unloading.

The clamp finally developed and now in use provides sufficient pres-

Half-second butyrate –the key to durable outdoor lacquers for aluminum

For economical aluminum lacquers of great outdoor durability we can unreservedly recommend half-second butyrate.

The results of our own development work plus reports coming to us from actual field tests indicate that half-second butyrate is providing outstanding protection to aircraft, truck trailers, structural sections and other aluminum surfaces equally difficult to protect. One-year performance tests have just been completed on a commercially operated airliner, for instance, with completely satisfactory results. In another case, performance tests on an over-the-road truck trailer have just passed the eight-month mark with the half-second butyrate lacquer still in excellent condition.

WHAT ABOUT BETTER PROTECTION FOR YOUR PRODUCT?

Eastman is anxious to cooperate with manufacturers and users of outdoor aluminum products in evaluating half-second butyrate lacquers. If you are seeking better protection for aluminum surfaces, let us hear the details of your problem. We will be glad to supply lacquer samples specially formulated to your needs and to assist in their evaluation. There is no charge. Write to us at Kingsport, Tennessee, or call your nearest Eastman sales office.

Aluminum lacquers made with half-second butyrate resist

Peeling	Steam Cleaning
Whitening	Salt Spray
Yellowing	Mortar Alkalies
Hydraulic Fluids	Rapid Temperature Changes
Gasoline and Oil	Abrasion

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SALES OFFICES: **Eastman Chemical Products, Inc.,** Kingsport, Tenn.; New York—260 Madison Ave.; Framingham, Mass.—65 Concord St.; Cincinnati—Carew Tower; Cleveland—Terminal Tower Bldg.; Chicago—360 N. Michigan Ave.; St. Louis—Continental Bldg.; Houston—412 Main St. **West Coast: Wilson Meyer Co.;** San Francisco—33 Montgomery St.; Los Angeles—4800 District Blvd.; Portland—520 S. W. Sixth Ave.; Salt Lake City—73 S. Main St.; Seattle—821 Second Ave.

sure to hold the work throughout its various processing cycles, yet the parts can be easily loaded and unloaded. With these clamps, no hole is needed in any parts in order to hang them to the overhead conveyor chain. The clamp itself is fastened to one of the integral conveyor hangers.

Orders Put in Tubes and Hung to Conveyor

As short-run production is characteristic of all aircraft work—with most orders ranging between a single prototype part and a maximum of 50 parts—some method had to be devised to keep track of the numerous production orders that are hung to the conveyor at any one time. To accomplish this, special chemically impervious and water-tight tubes were designed which could be easily attached to any one of the conveyor clamps, and into which could be sealed all the paper work covering a specific production order. In use this tube, with its sealed orders or directions, precedes each batch of parts along the line. So, when primed parts reach the unloading dock, there is no time lost in determining their future handling.

Conveyor Chain Cleaned in Stripping Tank

While the flow coating technique greatly minimizes conveyor contamination during painting, it is still necessary to strip coatings of primer from the various hooks and hangers. In the Douglas setup, this is accomplished just beyond the unloading dock, where the conveyor passes through a ceiling-

Here parts from the upstairs sheet metal department are entering washing chamber, the first in a series of processing chambers that comprises a 378-ft. long automatic processing and priming installation.

located stripping tank. Beyond the stripping tank, all conveyor pulleys are automatically re-lubricated by an Alemite lubrication system.

The Douglas Process Engineering Department did a lot of basic research in the flow coating technique of priming aluminum before installation of the present facilities was approved. During this research, it was ably demonstrated that the primer coating applied by a flow coater was of more controlled thickness and of consistent-

Hotpoint proves PERMALUCENT Polychrome Metallic Finishes resist grease . . . heat . . . cleaning compounds **best**

This new "Superange" is one of many heavy-duty appliances in Hotpoint's "Glamour Line" of all-electric commercial cooking equipment. The complete "Glamour Line" is finish-coated with radiant, silver-gray PERMALUCENT Polychrome Metallic Finish for premium beauty and durability at reasonable cost.

PERMALUCENT is a brilliant, new finish developed for Hotpoint by Midland Industrial Finishes Company, Waukegan, using ALCOA Pigments. By actual test, it is highly resistant to grease, high temperatures and cleaning compounds . . . maintains its "always new look" for years and years.

Paint manufacturers, working with ALCOA Pigments, have developed a rainbow of dazzling hues that are building big sales—and adding extra value—to a wide variety of products. This is another example of outstanding performance of a good quality Polychrome Metallic Finish.

Get the facts from your paint manufacturer, or write ALUMINUM COMPANY OF AMERICA, 1732-C Alcoa Building, Pittsburgh 19, Pa.

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

WHAT'S THE BEST WAY TO STRIP METAL PARTS IN LARGE VOLUME?
See page 9

Are you looking for better methods for stripping paint?

Do some finishes resist your present stripping methods? Do rejects form a bottleneck in your production line?

Oakite's FREE booklet on "How to STRIP PAINT" will help you find more efficient procedures. You'll want to read more about: The best way to strip parts too large to be soaked in tanks (*see page 3*); The best way to strip large areas of structural metal (*see page 5*); What strippers are best for oil-base paints?... Synthetic enamels, alkali-resistant plastics or resin-based paints... Japans, wrinkle finishes, nitrocellulose lacquers, alkyds, phenolics and ureas (*see page 12*).

FREE For a copy of "How to STRIP PAINT" write to Oakite Products, Inc., 32F Rector Street, New York 6, N. Y.

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ly better overall quality than primer coatings applied by dipping. The same type of basic research preceded adoption of the presently used surface treating process.

Parts Numbering System Works Perfectly

Another contribution of the Process Engineering Department was development of an etching ink for parts numbering. These parts numbers are stamped on before the parts are hung on the finishing system conveyor chain. The ink used is not affected by any chemicals used in processing, and it shows clearly through the applied primer coating.

The Douglas aluminum surface treating and priming installation approaches the ultimate in real convenience and automatic operation. As the conveyor passes directly through the entire sheet metal department, where aluminum parts are produced, it is only necessary to hang the finished, inspected, and number-stamped parts on the chain, then forget them. The parts are not handled again until they are automatically cleaned, surface treated, primed, and dried. Then, when they reach the unloading dock along with the tube-enclosed production order specifying further handling, there is nothing to retard their progress toward the ultimate goal—another airplane.

New V.P. of Mich. Chemical

Fred A. DeMaestri has been elected vice president in charge of operations by Michigan Chemical Corp., following the company's board of directors' meeting December 3. He was formerly technical supervisor of another company.

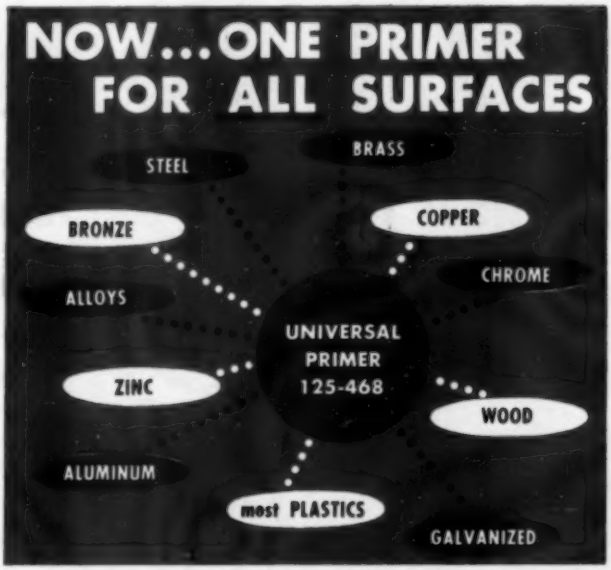
More About Cleaning Oil From Metal

THE SPREADING rate of an oil on metal can now be used to predict how difficult the oil will be to remove. The test is of particular value to metal fabricators and metal finishers who often use oils of unknown chemistry. These oils, while essential to metal working and corrosion prevention, must be removed before painting or electroplating.

According to Professor Henry B. Linford of Columbia University, it is not necessary to know the composition of oils used for lubrication, cutting aid or rust protection in order to tell how hard it will be to clean a metal. The user will now be able to *test an oil by watching how fast a drop spreads over a clean sample of the metal.*

Laboratory work on metal cleaning, sponsored by the American Electroplaters' Society, discovered that such a relationship might exist. Further work by Columbia has definitely developed the relationship between ease of oil removal and its spreading rate. The rate for any oil was found to depend on the roughness and the kind of metal being used.

Dr. Earl J. Serfass of Lehigh University, the A.E.S. Research Chairman, pointed out that the new test is of value beyond the metal cleaning field. Data obtained may help develop more tenacious rust preventatives, stronger filmed motor lubricants and more durable wax finishes. Easy-to-remove tool coolants are desirable.



Here's an outstanding wash primer to give you superior adhesion for any type of baked or air-dried finish, including lacquer or synthetic enamel. Brushed or sprayed on, Universal Primer "bites" into surfaces to establish a permanent bond to protect against corrosion.
We welcome your inquiries.

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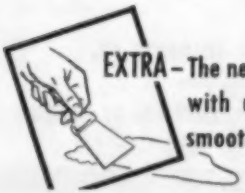
VINOC

LOWE Brothers presents

a new finishing system for high-speed production!

FAST APPLICATION · CLOG-FREE SANDING · IMPERVIOUS TO COOLANTS!

Faster flow of finished castings, reduced handling costs, finishes that resist modern high-speed coolants—*these* are the demands of today's production. Lowe Brothers "Finishing Specialists" have once more demonstrated their leadership by developing **VINOC,** a finishing system which meets every modern requirement, yet maintains the highest standards of beauty and wearability which made the Lowe Brothers name great!



EXTRA—The new filler in the VINOC system glazes with unprecedented ease, speed and smoothness with knife or squeegee!

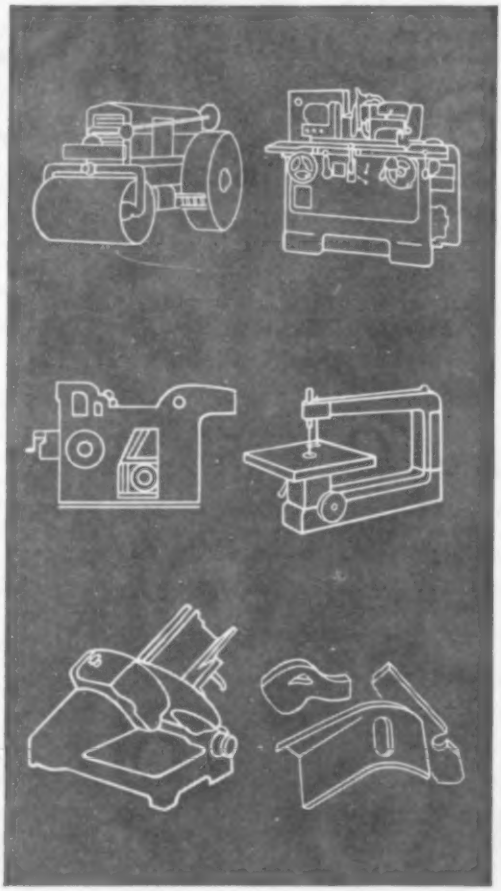
ENGINEERED QUALITY

IMPROVED RESISTANCE TO MODERN HIGH-SPEED COOLANTS! Lowe Brothers **VINOC** finishes have proved impervious to all modern coolants to which they have been subjected—to keep in stride with today's requirements of streamlined production techniques!

FASTER, ECONOMICAL CLOG-FREE SANDING! Pigmentation of Lowe Brothers new *filler* is such that it does not clog sandpaper! It sands *easier*—desired smoothness is realized in less time with much less work! What's more, you enjoy a marked savings on *sandpaper alone!*

FASTER DRYING! Lowe Brothers **VINOC** system reduces drying time to a new low—speeds handling. Materials dry free of "pinholing"—as a result there's no re-working necessary!

IMPROVED RESISTANCE TO IMPACT AND COMPRESSION! Large castings take plenty of shocks and scuffs during plant handling operations. Lowe Brothers **VINOC** finishes are made tougher to resist this rough treatment and thereby reduce need for patch work.



Lowe Brothers new **VINOC** finishing system is available for either cold or hot lacquer application. Get full details now—see how *you* can save time and cost while getting finest finishing results with Lowe Brothers' up-to-the-minute answer to the most modern production needs—**VINOC!** Write today for prompt service without obligation.

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Lyon Steel Cabinets Painted *Electrostatically*

BY M. J. COSENTINO
Division Supt. of Finishing
Lyon Metal Products, Inc.

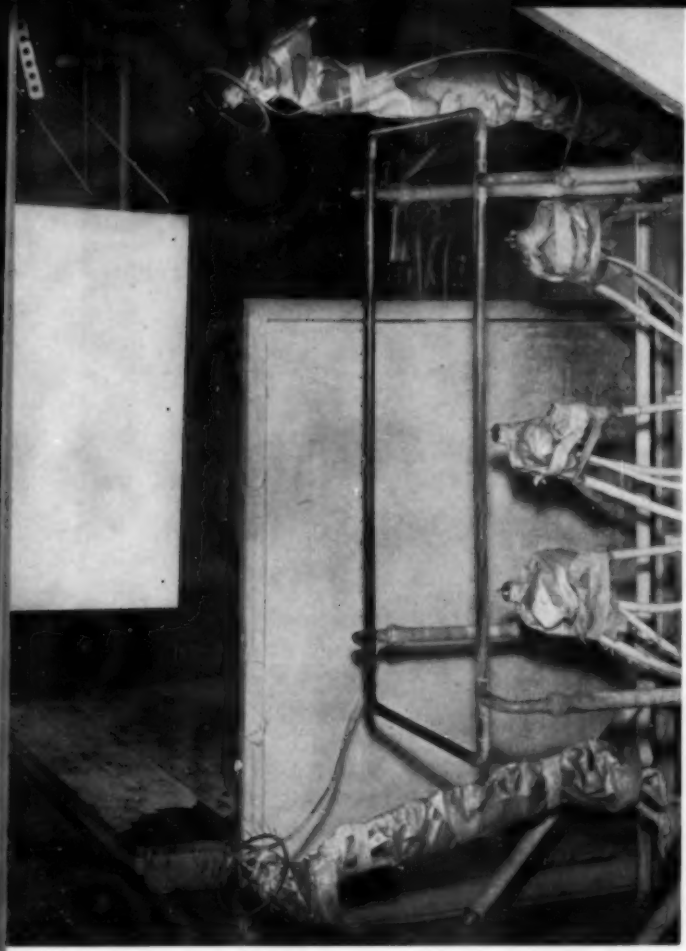
Two kinds of cleaning—one for each type of steel parts; trichlorethylene degreasing and a 5-stage process which includes phosphatizing. Spray painting in the electrostatic field, followed by oven baking and cooling.

BECAUSE OF THE new high quality standards demanded in our steel cabinets, it is necessary that we maintain virtually two finishing systems.

Sound deadener is installed between the outer wall and inside liner of all doors, drawer fronts, shelves and liner fronts. This includes most of the exposed parts of our cabinets.

Obviously the surfaces of these parts cannot be cleaned and phosphate coated in the power washer because the solutions and rinses would contact and damage the in-

Steel cabinets are hung to conveyor far to right, and travel into and through power washer.



Five fixed spray guns spray enamel through a high voltage electrostatic field. The spray booth is one of the down-draft water curtain type.

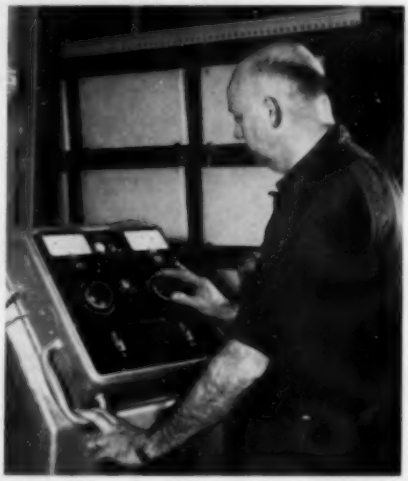
sulation. To maintain our quality standards, these parts are made of zinc coated steel to protect the surfaces against corrosion in case the finish is deeply scratched or marred at any time. Light oil and finger marks are removed in a vapor degreaser. All other parts of the cabinets go through the power washer.

Now let us consider the conveyorized finishing line for these exposed metal parts. The overhead monorail conveyor has hooks on 6-ft. centers. Each work holder will support anywhere from four to 15 pieces, depending on their size. The conveyor carries the parts down through the vapor zone of a trichlorethylene degreaser, then back up and through an enclosed tunnel for ten minutes to cool off. As parts leave the degreaser the temperature of the metal is 280° F.

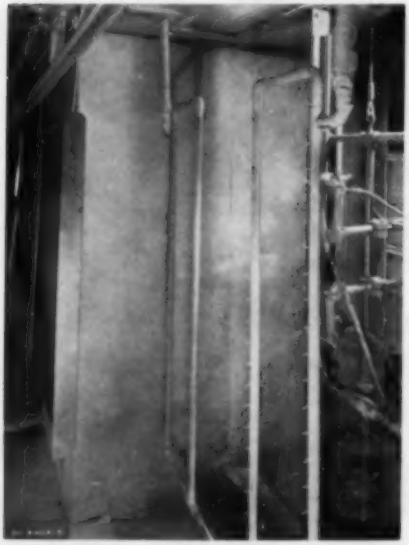
Next, these clean, dry parts move through two electrostatic prime coat booths. Two booths are needed to coat both sides of the

parts as they pass through. Within each spray booth there is a vertical reciprocating gun carriage that carries two spray guns. For painting long parts these carriages can be set in motion, but either carriage can be stopped at any desired position and remain stationary to coat small parts as they pass through the booth. The white primer is used at a viscosity of 13 seconds at 78° F., as measured in a No. 4 Ford cup. Atomizing pressure is 22-lbs. and fluid pressure is 3-lbs. The electrostatic field is 110,000 volts with 1½ amperes.

The prime coated parts travel for five minutes to allow the primer to flash (air dry) before they enter a gas-fired convection oven where the prime coat is baked for 40 minutes at 365° F. After leaving the oven, these parts travel to cool for eight minutes. Then they are inspected and lightly sanded with No. 320 sandpaper. This *smoothing is followed by a thorough tack ragging to remove every trace of dust before the top coat of enamel is put on.*



Instrument panel where the electrostatic field around paint spraying is controlled.

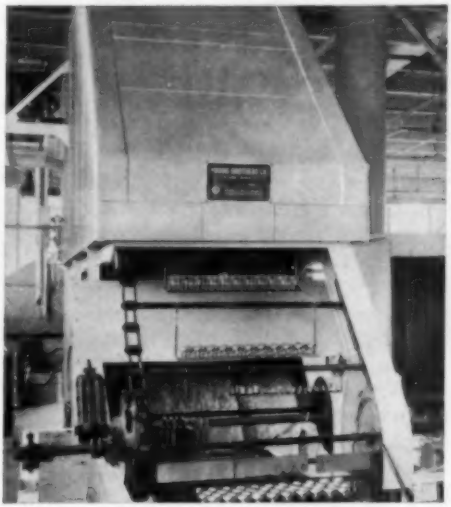


At right you see a reciprocating carriage (it moves up and down) which carries two spray guns, spraying through high voltage electrostatic field. The movable carriage can be set to remain stationary at any point along its line of travel.

Top Coat Spray Booths Are Completely Electrostatic

Double electrostatic booths, similar to those used for the prime coat, are used for applying the top coat enamel. In the first booth, one side of the parts is coated, and in the second booth, enamel is applied to the other side. This static field is also 110,000 volts, at 1½ amperes. The white alkyd resin base enamel is used at a viscosity of 16 seconds at 78° F., as measured in a No. 4

YOUNG BROTHERS OVENS



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Continuous 2-Chain Conveyor Baking Oven

Young Brothers Ovens are engineered and built by oven specialists to meet individual baking and drying problems. That's why it will pay you to consult with Young Brothers Co. first for your particular oven requirements.

You can be sure of improved production and savings in time and material regardless of your process, when you install Young Brothers Ovens.

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Write for Bulletin 4.

YOUNG BROTHERS COMPANY

1835 Columbus Road Cleveland 13, Ohio

Established 1896

The enamel for supplementary hand spraying is heated in a paint heater before being sprayed. As a result it is always at the desired viscosity; it has greater solids content at time of spraying, and there is less overspray or wasted paint materials.

Ford cup. The atomizing pressure is 24-lbs.; fluid pressure is 3-lbs.

Just beyond these double booths an operator manually sprays some of the difficult to reach places on some parts such as offset flanges, inside corners and surface areas protected by a flanged edge. The enamel used in this supplemental hand spraying has a viscosity of 22 seconds at 78° F. (No. 4 Ford cup) and passes through a circulating type paint heater thermostatically controlled at 150° F. Enamel temperature at the spray gun is approximately 130° F. Atomizing pressure is 50-lbs., and fluid pressure is 20-lbs.

A five minute flash period is allowed before the enameled parts enter a gas-fired convection oven where the top coat is cured for 35 minutes at 300° F. When the coated parts leave this oven they travel for 15 minutes to cool. Then follows final inspection, and the parts are delivered to assembly lines. The dry film thickness is 2-mils.

Cabinet Shells and Parts; Cleaning; Surface Treating

Now let us take up the finish on cabinet shells, concealed parts and, in fact, all cabinet parts not in contact with sound deadener. These parts are constructed of cold-rolled steel; to protect them against the possible starting or spreading of rust in case of abrasion, and to promote better adhesion of the paint, their surfaces are phosphatized. These parts are hung from hooks attached to an overhead monorail conveyor, the hooks being spaced 6-in. apart. The conveyor is operated at desired production speeds, depending on the size and contour of the parts going through. Care is used in hanging cabinets to the conveyor so that they will be in position to allow drainage of all solutions and rinses applied in the power washer. [*To page 42*]

Stage	Operation	Degrees F.
1)	Alkali cleaner with emulsion added	140
2)	Hot water rinse	140
3)	Phosphatizing Solution	140
4)	Cold water rinse	xxx
5)	Mild chromic acid solution	120

NEW! Here's the "Inside Story" on Cleaning Metal Parts and Products

28 PAGES
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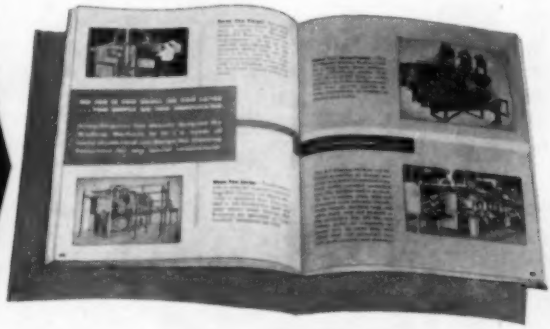

Here, in this new revised 28 page—plus cover—file size booklet are presented all of the factors to be considered in making the proper choice of equipment for thoroughly cleaning and processing practically every type of metal parts and products. This book carries the reader quickly through all construction features. A section of the book is devoted to Completely Co-ordinated Conveyorized Systems engineered to solve specific problems in leading industries. Flow charts show clearly how A-F Cleaning and Conveyorized Equipment can be integrated into a line production system. Such a booklet can easily be worth thousands of dollars to your company. To you it is FREE—if you write on your company letterhead—today.

ALVEY-FERGUSON

Engineered CLEANING and PROCESSING MACHINES

A-F Est. 1901

THE ALVEY-FERGUSON COMPANY

727 Disney Street CINCINNATI 9, OHIO

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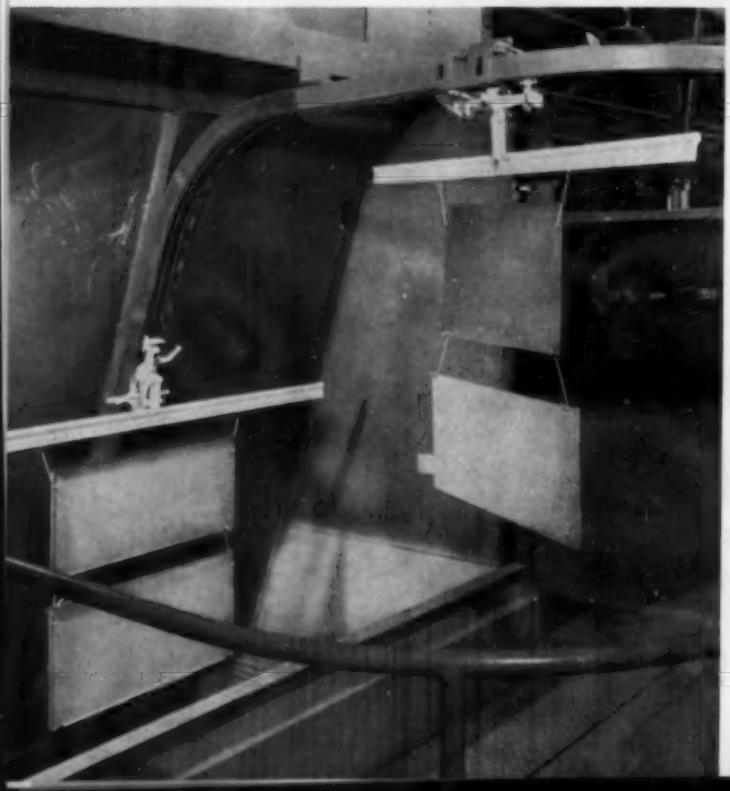
Then follows a trip through the dry-off oven at a temperature of 325° F. Emerging from the dry-off oven, parts cool for five minutes as they travel to the electrostatic spray booths.

Another Spray Setup for Phosphatized Surfaces

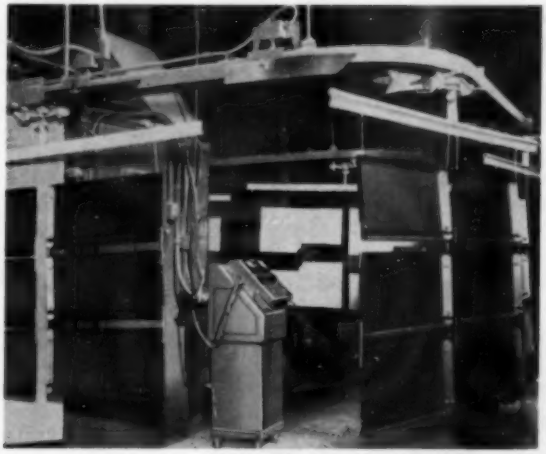
This is a double spray booth in which one side of the work is coated in the first booth, and the other side in the next booth. Some supplemental manual spraying is done in the exit vestibule of each booth to cover those small almost hidden areas that are practically inaccessible to electrostatic spraying, especially inside cabinets. Each booth has five fixed spray guns, two of which coat the tops and bottoms of cabinets. Enamel is sprayed through a 110,000-volt, 1½ ampere static field. The white alkyd-resin-base enamel is used at a viscosity of 16 seconds at 78° F., as measured in a No. 4 Ford cup. Enamel used in the supplemental manual spraying is the same as for coating doors, drawer fronts, etc.

A flash period of three minutes is allowed before these enameled parts enter a gas fired convection oven where the finish is cured for 30 minutes at 300° F. If the conveyor is speeded up for certain parts, the oven temperature is proportionately increased. [*To p. 44*]



Zinc coated steel doors, drawer fronts and shelving moving from right to left and going down through a trichlorethylene vapor degreaser where their surfaces are cleaned before painting. Notice hangers which turn automatically to crosswise position before the products enter degreaser.

ANOTHER *Ashdee* ELECTROSTATIC PAINTING SYSTEM



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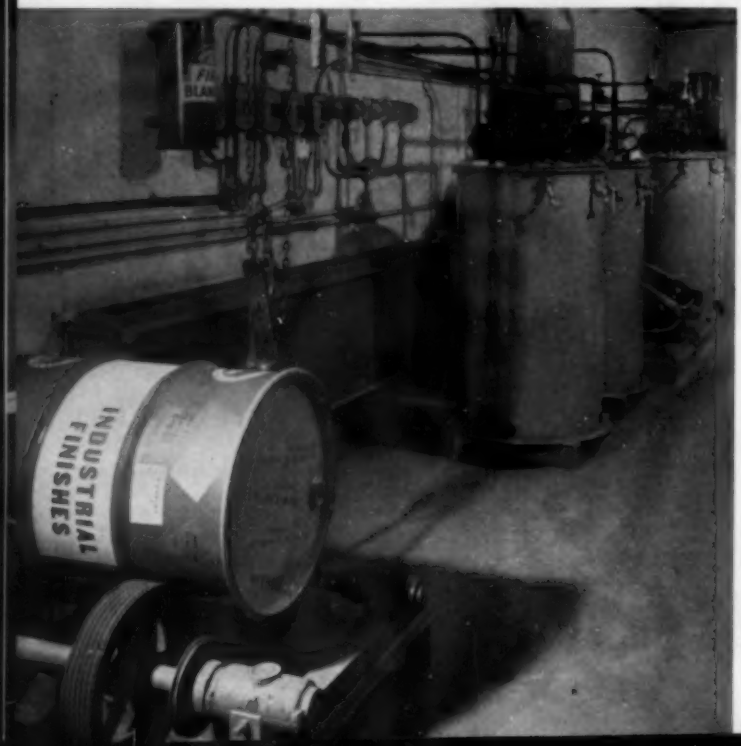
Central Paint Supply and Circulating System

Both the primer and enamel coat materials are supplied to the electrostatic booths, and for manual spraying, through a paint circulating system. The central supply room has four 150-gallon tanks which supply the electrostatic booths, and two 150-gallon tanks for manual booths.

All paint tanks have electrically driven stirrers or agitators. A drum agitator is used to thoroughly mix enamel before it is filtered into the mixing tanks. The enamel passes through two filters which are cleaned each day. It goes out into the system under 25-lbs. pressure, with 15-lbs. return pressure. The paint storage room adjoins the supply room, and the temperature of both rooms is maintained at 78° F. throughout the year.

Hangers and Hooks Stripped Every Trip; Chain Cleaned Too

Hanger rods and hooks pass through a stripper tank on each trip to remove any enamel coating . . . . to prevent an accumulation of paint forming on the hooks. The stripper tank is located between the unloading and loading stations. Each day a 60-ft. section of conveyor chain is removed for stripping and replaced with a clean, extra section. One operator is assigned to this work. His other duties consist of filling the automatic chain and trolley oiler reservoirs once a week, straightening and repairing (when necessary) all hooks, rods and work holders. It is a full time job, and as a result, this important equipment is always clean and in first-class condition. All else being equal, this arrangement saves rejects, and more than compensates for the labor cost.



A view in the central paint supply and mixing room. Paint is prepared here and pumped through pipe lines to spray booths.

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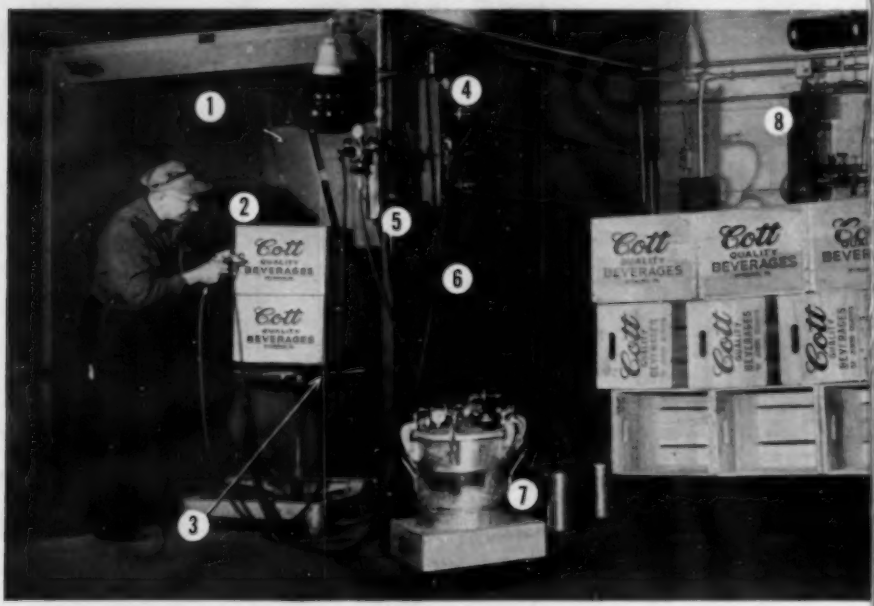


DeVilbiss hot-spray system is

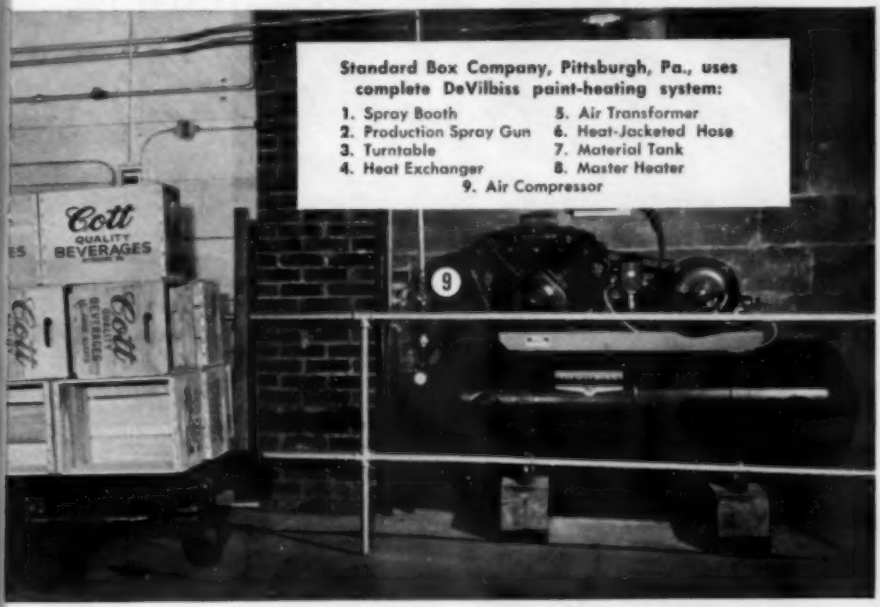
BETTER finishes with fewer coats! Spectacular savings in time and material costs! Lower air and fluid pressures! Uniform material viscosity, regardless of room temperature!

Phenomenal benefits like these can be yours with a DeVilbiss paint-heating system, designed especially for industrial finishing.

Take the Standard Box Company, Pittsburgh, Pa., for example. Box makers for over 38 years, Standard had the problem of providing a protective coating on beverage cases – for longer life, better appearance.

Said Standard's president, Julius Sheps, "We used clear lacquer. For workability, the usual lacquer-thinner ratio of 1 to 4 was required. This meant three or four applications to give adequate protection to our boxes. Extensive thinner usage and multiple coats made costs prohibitive.

"We'd heard of DeVilbiss' new paint heater, and it turned out to be the perfect answer. With the DeVilbiss hot-spray system, we're now getting superior material flow, even spreading, better film build, better drying and a tack-free surface. The lacquer-thinner ratio is



revolutionizing industrial finishing

now reversed, providing four times as much solids per coat, saving on labor as well as thinner costs. We are not just satisfied with the results . . . we are delighted!"

Let a DeVilbiss representative help solve your finishing problems. The standard components of DeVilbiss' paint-heating system can be combined in countless ways to meet your special needs. There is but one source for complete hot-spray equipment, technical skill and responsibility that will improve your finishing operations—DeVilbiss.

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Pre-Treating and Painting *Steel Tubing at Mill*

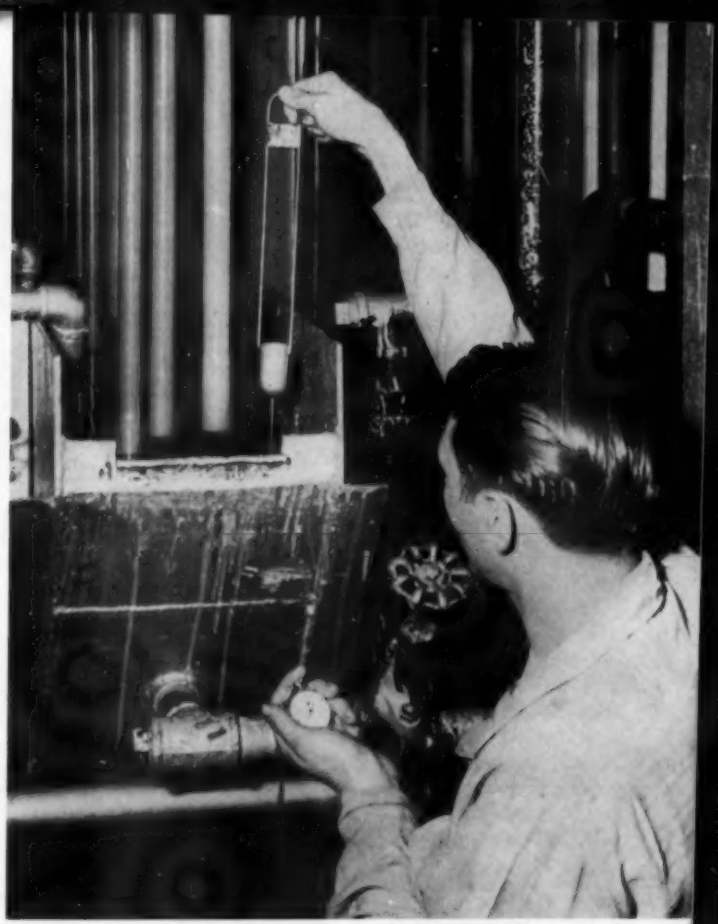
How new steel tubing is made; the conveyorized dip-cleaning, controlled dip coating, oven drying, the cooling off, and mechanical unloading of tubes which hang vertically from an overhead traveling chain.

Tubing is cooled at room temperature as it circulates for 11 minutes while suspended from overhead chain conveyor — after the finish has been baked in an oven. Inspector looks over each piece of finished tubing as it travels through the drying room.

A BROADENING of customer requirements for special types of tubing as well as for different types of paint and plastic finishes on that tubing, is turning the Electricweld Tube Division of Jones & Laughlin Steel Corp. into one of the most specialized divisions of the company.

At the finishing end of the Electricweld Tube Division, J&L, engineers have developed modifications on a conveyor system over 1000-ft. in length which makes possible a rapid feed of uncoated tubing to the continuous automatic dip line for the application of practically any kind of organic coating.

J&L's concentration on engineering and processing improvements within this division is explained by the lengthening list of end product uses for both plastic-coated and uncoated steel tubing now being produced at Oil City, Penna., plant. Makers of automotive parts, farm equipment, furniture, television antenna masts, bicycle frames, playground equipment and building columns are on the customer list of this division.



Inspector making a viscosity test in one of the paint tanks. Viscosity of the paint is checked regularly every two hours.

Wide Coils of Steel Are Unwound, Slit, Re-Reeled

Produced "by the mile" the tubular material is formed and finished by processes which, according to Dale Kennedy, plant manager, "comes as close as we can design them to being 100% automatic".

The Electricweld Tube Division uses flat rolled coiled strip steel from .022 to .154-in. thick, weighing from 3000 to 10,000-lbs. per coil, and varying from 24 to 33½-in. in width. Shipments of the strip are made by truck or railroad from Pittsburgh and Cleveland plants. Incoming coil strip at Oil City shows a wide variety of physical properties and chemical content, depending upon the final applications scheduled for the tubing.

The first step in the production of tubing is the slitting of the strip steel coils to size. Re-reeling of the new, thinner coils follows before the steel is taken to the continuous welding mills.

The "by the mile" concept of tube fabrication at this plant begins during continuous welding, at which time as many as eight of the new

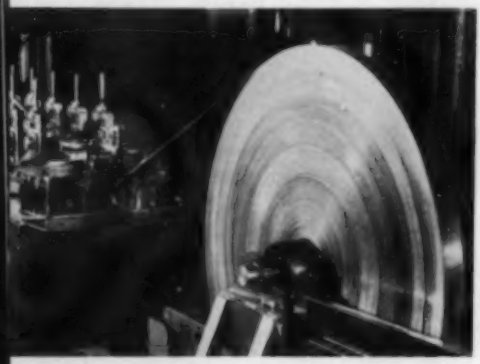
coils are end-welded together to form single reels of 6000-ft. or more. Length of the working coils cuts down the number of times the mill must be shut down for re-threading. Savings in labor time and material handling are also effected by use of the longer coils.

In these mills, strip steel is progressively roll-formed into tubing on any one of six electricweld mills, which produce a product ranging in size from ⅜-in. to 4-in. outside diameter, and in wall gauges from 22 to 9.

The first roll on the mill is almost flat. The succeeding five or six sets of rolls in the forming section are progressively more concave, shaping the flat steel into tubing and butting the two edges of steel together.

After welding, the tubing goes into the sizing section of the mill, where it is cooled with an emulsion consisting of 12% to 14% soluble oil in water, and reduced slightly to exact size.

A large recoil at entrance of welding mill. This coil contains 6000 to 8000-ft. of slit strip steel, which is now moving into the forming rolls at left.



The speed with which steel can be moved through the welder varies in relationship to the gauge and grade of the steel itself, and to its ultimate application. Lighter gauges go through at a faster clip than the heavier gauges, with average gauge moving between 80 and 100-ft. per minute.

The welding completed, a cut-off machine connected directly to the mill, cuts the tubing to the required lengths.

Straightening of tubing is performed by adjustable roll straighteners, prior to shipment or further fabrication. In addition, Perma-Tube formed for television masts goes to special equipment, where ends of the tubing are swaged and expanded to form a fitted joint, making possible the telescoping of one piece of tubing into another.

Overhead Chain Conveyor Moves Tubes Through . . .

The widening market for various shapes and sizes of tubing is closely reflected in the painting and finishing lines of Electricweld Tube Division. In this line, equipment has been designed and installed to provide necessary versatility in handling the various sizes of tubing while guaranteeing coating weight, appearance, and thickness of the coating. Key link in this entire operation is an overhead conveyor system, which stores and transports the tubing on hooks into and out of the line of dip tanks.

Perma-Tube for television masts represents a substantial portion of the Oil City plant's output; and the painting and finishing line is geared for special handling of this tubing

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to apply a corrosion-proof coating inside and out. In this operation, tubing receives its metal pre-treatment—a combination metal treatment and metal primer—followed by a finish coating of a tightly adhesive aluminum-pigmented vinyl resin base.

To expedite the movement of tubing by way of the overhead conveyor system, J&L engineers designed a procedure that makes possible a hookup of tubing up to 10-ft. in length as fast as the following production sequence requires.

Hot Alkaline Cleaning and Hot Water Rinse

The tubing first passes through a series of hot alkaline cleaning and rinse tanks. After moving through the final tank, the tubing is rinsed in clear water, kept clean through the constant addition of fresh make-up water. This water is heated to hasten the drying of the tubing before painting.

Strength of the solution in the cleaning tank and temperature of the cleaning water are both electronically controlled.

Pre-Treatment Primer; Bake; Final Coat; Bake; Cool

The dry tubing then passes through two successive installations, each of which comprises a coating tank and a gas-fired oven. The first oven bakes on the initial coating which is a metal pre-treatment primer applied to the tubing in the first coating tank. The tubing then takes another dunking in a second tank to get its outer protective coat. This is followed by baking in another oven, the temperature of which is considerably higher than that of the first.

Tubing then cools at room temperature as it circulates on the line for approximately eleven minutes. An unloading mechanism, similar to that which pulled tubing on to the conveyor system, removes the finished coated tubing for final inspection and preparation for shipment.

All heating units and all tanks on the cleaning and paint line are automatically controlled by electronic devices. To insure a uniformly high grade finish, the paint is mixed before it enters the tanks, and paint viscosity is checked every two hours.

Since interchangeability is a major design feature of J&L Perma-Tube, the tubing is closely examined for straightness. The shoulder of the joint also is inspected, and every third piece is checked with a plug gauge for dimensional accuracy. After painting, samples of the tubing are subjected to destructive tests, salt spray for corrosion resistance and weld tests.

Story supplied by "Product News" of Jones & Laughlin Steel Corp.

American Air Filter Co. Opens a New Denver Office

AA new branch office to handle the sale of Herman Nelson products has been opened in Denver, Colo., by the American Air Filter Company, Inc., Louisville.

The new office is located at 1660 Gilpin St. and will cover the Colorado and Wyoming district.

Air Filter products of the company in the Denver area will continue to be handled by the Herman & von Rosenberg organization at 1228 California St., Denver. Likewise, American Air Filter dust control products will remain with Richards and Associates, 2415 15th St. Denver.

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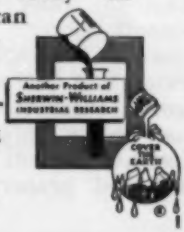

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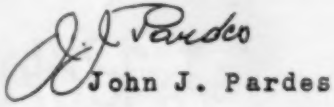
We at American Optical Co. have a proud safety record for which we have received several awards. In my belief this is due more to the understanding, through education of the basic theories of safety, than to mechanical devices provided for that purpose.



John J. Pardes

Let's Look at Shop Safety

IN AN ARTICLE published in the August issue of this magazine, I discussed the subject of good housekeeping in the finishing department. An analysis of this article leads us to the understanding that all the rules applying to good housekeeping serve either as preventive measures or as direct safeguards against hazards involved in finishing operations.

Following this line of reasoning, we arrive at the logical conclusion that the rules which govern the smooth, efficient running of an industrial household cannot be separated into two categories—one for good housekeeping; and the other as purely preventive measures against hazards involving personnel and property. Rather, these rules are made up into one compact package to assure a safe, efficient and profitable industrial effort, providing a high morale through cleanliness and safety which, in turn, will culminate in the ultimate success of the enterprise.

Safety Depends Upon Vigilance and . . . .

Safety depends almost entirely on human efforts of vigilance, enlightenment and the awareness of the individual's responsibility toward society. It is true that a small proportion of accidents are due to mechanical failures or to an act of God. The latter is outside of our orbit of control; however, *a large proportion of mechanical*

By JOHN J. PARDES, Foreman-Technician, Organic Finishing Dept., Projector Division, American Optical Co.

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failures can be traced back to negligence in the care of equipment.

The tools we are working with are the products of specialized engineering skill, bearing the seal of approval of long years of experience. Engineers who design and develop these tools also have the task and duty of making certain that there will be no potential hazards involved in the tools' functional life. But they cannot vouch for hazards resulting from faulty maintenance of these tools.

Lack of adequate safety measures affects an individual both physically and psychologically. In a way of simple illustration, let us take the individual who slips on an oily floor, thereby suffering a bodily injury. The physical effect is in evidence—a broken leg or collarbone, etc. The psychological effect has a somewhat more extended process due to the fact that as a result of the accident, the individual becomes aware of hazardous conditions which were in existence due to carelessness, and therefor takes the necessary precautions to eliminate any reoccurrence.

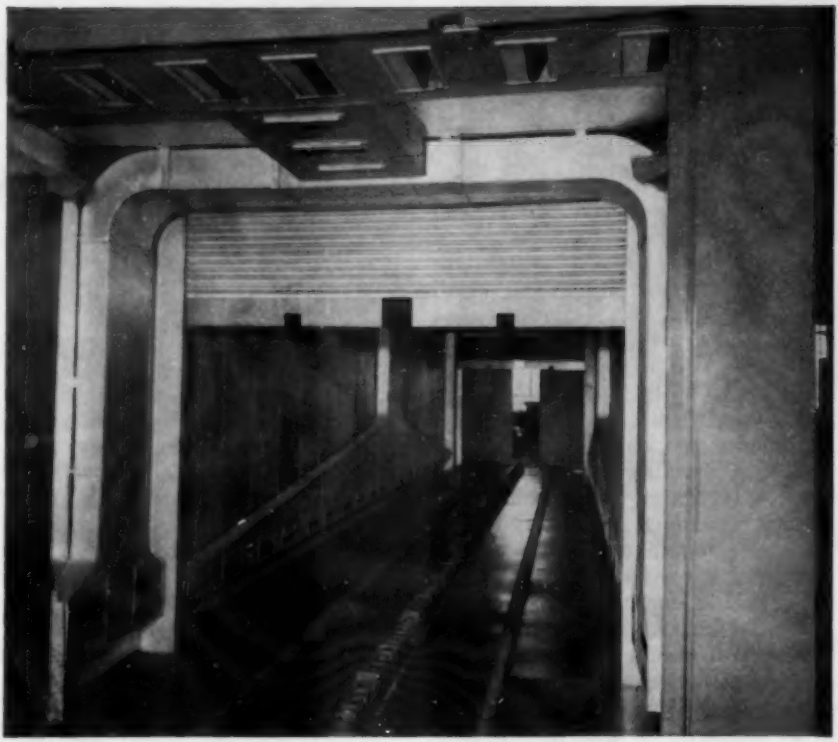
Lack of Safety Measures; Bad Effect on Workers

Lack of sensible safety measures in any and all departments of an industrial establishment has a demoralizing effect on the entire personnel. The writer particularly recalls one instance where the press department of a plant, due to inadequate safety measures, had an enormous weekly quota of smashed or lost fingers and mutilated hands. A bitter little slogan was made up by one of the more resentful minds, which ran like this: *"A finger a day for Acorn & Bray."** The point of this little ditty more than amply made up for what it lacked in poetic strength. It caught on like wildfire and soon it became an adjective almost inseparable from the name of the firm. Later, adequate safety measures were taken which somewhat improved the morale, but for a long time, the demoralizing effects of unsafe conditions in one single department could be felt all along the production line.

Hazards Exaggerated? Safety Comes First

We are inclined to believe that we sometimes have a tendency to exaggerate insofar as hazards are concerned. However, can we really put enough stress on the importance of safety? Let us consider some of the major conditions arising out of negligence on the part of a firm to take the necessary steps against hazards. Certainly dermatitis contracted in an industrial operation only affects a person's skin; however, there is also involved the loss of skilled manhours with its corresponding effect on production—and how about the morale? Does this accident speak well for a management that would allow such a hazard to exist rather than invest in adequate safeguards against it? It is certainly worthwhile for a firm to invest in safety measures and to stress the importance of good housekeeping in order to prevent personal injuries to

*The firm name is purely fictitious. I have checked carefully the telephone directories but could not find such a name. However, the incident described in connection with it is factual.



3-ZONE CONVEYORIZED FINISHING OVEN

Important operating economies are among the many distinctive features of this 3-zone automatic conveyor oven. Exhaust gases from the baking zone are utilized efficiently for work pre-heat. High velocity outside air, used in the cooling zone and there raised in temperature, is employed as pre-heated make-up air for the air heater.

Like all 101 *Equipment this installation is characterized by:*

- **Sound Engineering**
- **Expert Workmanship**
- **Operating Economy**
- **Maximum Investment Return**

This same system can be employed in many industrial oven applications.

If you have a problem in this field it will pay you to consult **101.**

- PAINT BAKING OVENS, BATCH AND CONVEYOR
- WELDING ROD DRYERS
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- HEAT TREATING OVENS
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INDUSTRIAL OVENS, INC.

13821 TRISKETT ROAD CLEVELAND 11, OHIO

employees, losses in property and production, and serious inroads in the morale of its workers.

List Shop Hazards; Check Them Regularly

To prevent accidents which can result in injury to personnel and loss to property, it is imperative that we be fully cognizant of all the possible hazards inherent to the operations and machinery with which we are working. We should not rely on being able to store in our minds a list of hazards.

Supervisors have all kinds of problems besides those connected with safety and they cannot keep safety provisions in the foreground of their mental tasks. Each department of the industrial household should compile a list of the potential hazards of its operations under two classifications:

1) Those that may result in real bodily injury.

2) Damage or loss in property.

A copy of this list should go to the central safety committee. This will enable them to check during their periodical rounds of the plant whether or not adequate preventive measures have been taken. Daily checking should be left to the supervisory personnel of each department. This can be easily done regardless of the size of the plant. The list can be posted on bulletin boards, which provide a good excuse for many to get a breather from the monotony of work, or to discuss posted notices during breaks. In this way, many people can read it and each can learn about the hazards involved in the work in which they are engaged.

Safety posters or cartoons are provided by professional safety service firms which are also very helpful as far as general safety practices are concerned. It cannot, however, handle specific safety problems unless they are called upon to do so.

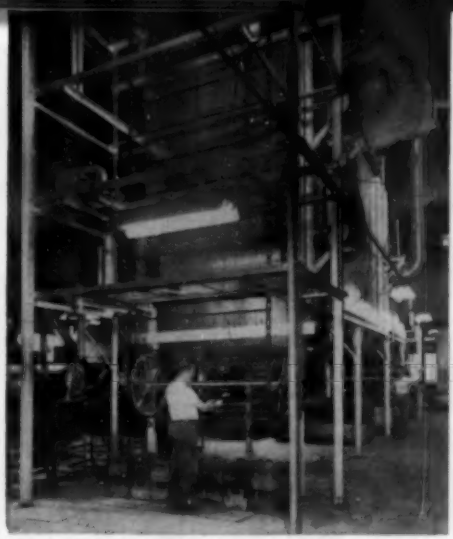
Possibility of Fire Always A Major Hazard

Organic finishing and other operations connected with it are hazardous . . . . involving both physical and chemical reactions. The chemicals used are highly flammable, sometimes explosive. The vapors of solvents used are injurious to health if not employed with adequate safeguards. We also have all other hazards figuring in general operations, such as handling materials of considerable weight, intra-plant transportation, etc. However, our major hazard has always been that of fire.

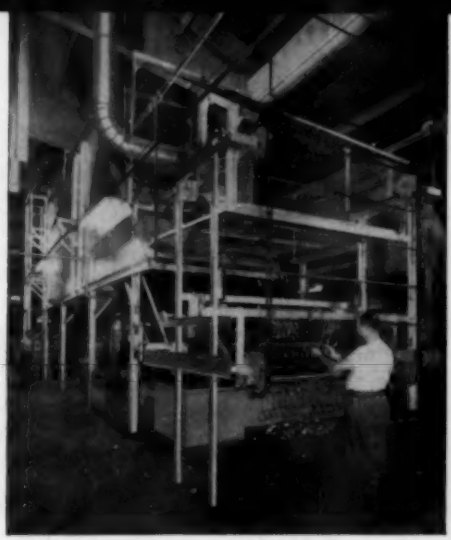
There are established laws that prescribe the measures which should be taken to reduce fire hazards in an organic finishing department, but no amount of legislation can engulf all the safety practices and precautionary measures which would give the paint shop a top measure of safety. It is definitely our task to see to it that all operations are conducted with all the safety that can possibly be devised.

Instruct Workers About What Can Cause Fire

Fire, being one of the major hazards in organic finishing operations, is safeguarded against by laws, approved equipment, good



Charging end of finishing system. Parts dip quickly into paint tank then begin three passes through oven.



Unloading station. Note how oven utilizes ceiling space, leaving floor free for operators and storage.

Kirk & Blum Oven and Finishing Installation

INCREASES PRODUCTION 92%
SAVES 82% IN PAINT

. . . K-D LAMP COMPANY, CINCINNATI, OHIO

Before installation of this KIRK & BLUM system, maximum finishing production of small stampings and castings was 26,000 parts in 8 hours. Now, with the same operators, production is 50,000 parts in 8 hours. In addition, dip painting gives a better, more uniform finish and saves up to 82% of the paint formerly used in spraying.

This oven, despite its size, offers simple operation. Conveyor carries cross bars on selected centers up to 32 inches, depending on work size. The parts are loaded by the operator . . . dip into the caster-mounted interchangeable paint tanks, then make three horizontal passes inside the oven. Foamite fire protection is built-in.

The KIRK & BLUM Oven is direct gas fired, recirculating type, automatically controlled. The cycle can be varied from 1 to 2 hours. This speed control gives wide variation in the types of finishes which can be used.

This KIRK & BLUM installation is the ninth at this plant, ample evidence of complete satisfaction. Other installations include: 3 paint oven systems, fume exhaust system, 1 dust control system.

Whatever your industrial needs, consult KIRK & BLUM. Write for catalog on Industrial Ovens. The Kirk & Blum Mfg. Co., 3131 Forrer St., Cincinnati 9, Ohio.

KIRK AND BLUM
OVENS

housekeeping, common sense and by education of the personnel. It pays great dividends to instruct people about the material and equipment they are handling. The supervisor can and must impart his knowledge of the chemical properties of finishing materials to the people under his supervision. We do not necessarily have to teach them chemical abstractions or equations, but certainly, it would cause no harm if the operator of a spray gun knows that paint is composed of solids and volatiles, each having different chemical properties, and the operational hazards connected with them.

Health Hazards in the Finishing Department

Anybody handling organic finishing materials should be able to identify different types of organic coatings by means other than that of odor alone. Instruction should extend to cover knowledge of the equipment and its physical hazards. Discuss with them static electricity, auto-ignition, pressurized air, evaporation rates, viscosities, etc. Knowledge will make a proud individual out of your operator and you too will have the satisfaction of having an enlightened crew working for you. Efficiency and safety will increase in the same proportion as enlightenment will.

Protection against health hazards in the finishing department is the sole responsibility of management and cannot be considered the duty of the individual operator. Of course, everyone is concerned with his health and tries to protect it as best he can, but protection of health in the industrial household requires more than ordinary self-preservation rules. Industrial health hazards arise from special circumstances and consequently require special measures which have little to do with the individuals instinct of self-preservation.

It was the writer's intention to compile a statistical chart, listing accidents which have occurred in finishing rooms, together with the causes and rate of frequency. Unfortunately, this data is not available and, therefore, he has had to base his findings on many years of experience and, to a great extent, just plain common sense.

Freak Accidents Always Have a Logical Cause

One cannot feel too complacent about safety, when so called "freak accidents" occur in his own back yard. One such "freak accident" occurred just recently when a leak sprung in a plastic lined tank, containing a corrosive acid solution, dumping the solution to the floor

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"Step right up Gentlemen, you ain't seen nuttin' yet." And you haven't until you've seen Northwest's Strippers in action. These high-speed babies really "peel" organic finishes. Built to cope with all types of paints on metals or plastics—Northwest Strippers give you a clean surface ready for repainting in one run-through.

Remember—YOUR COST PER FINISHED ARTICLE IS THE TRUE COST OF YOUR CLEANER

Northwest Strippers are Safe—no fire hazard, no odor, no fumes, non-toxic. Northwest Strippers are Sure—parts are fully cleaned—metal surfaces are unharmed—long life is assured—economy is proven. Northwest Strippers are Soluble—film is converted into a form which can be rinsed off with water spray—contains no chemicals which can't be flushed through sewers.

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right below the finishing department. To all practical intent and purposes, that particular tank looked as "safe" as anything in the writer's memory, except that the highly corrosive action of the acid solution in the form of drippings attacked the tank from the outside (which was unlined plain steel) making a nice corrosive nest between the tank and its stand.

One can get a considerable jolt when he suddenly remembers that aluminum pigment and an alkaline water solution can make a pretty explosive combination, especially when his department is engaged in spraying the very same material.

An organization cannot rest on its laurels of having done plenty in the safety line. The highest degree of safety measures should be taken at all times to insure proper protection against hazards as this is essential for the well-being of employees as well as the success of an organization.

Bede Int'nat'l. Development Co.

Mr. James A. Bede announces that his new company, Bede International Development Co., will conduct operations on a world-wide basis. Mr. Bede (formerly conducting business through Bede Products, Inc.) is the holder of many patents of importance to the paint industry, covering paint heaters, airless atomization, etc. All of these improvements, and others to be announced, will be made available to the paint industry through his new company, on a licensing basis. The majority of licensees have been selected from a list of leading equipment manufacturers in their respective countries. They are as follows:

Bede Products Corp., Amherst, Ohio, U.S.A.; Bede Products (Canada) Ltd., Toronto, Ontario, Canada; T. C. Spray Finishing Systems, London, England; S. A. Kremlin, Paris, France; Fernando Bassi, Milano, Italy.

Bede International Development Co. will act as the nucleus for this world-wide organization, conducting tests, gathering and disseminating information, and acting as a supply source to the licensees for special items unobtainable in their own countries.

The objective of the company will be to constantly find ways to improve paint application techniques and thereby help the paint industry throughout the world to achieve a higher level of performance.

Sheets V. P. of Clement Coverall

Virgil N. Sheets has joined the Clement Coverall Co. as Vice-President in charge of Research and Development. Mr. Sheets is responsible for new and special product applications and is available for customer consultation in decorative and productive coatings.

Mr. Sheets is a graduate of Ohio University, Chemical Engineering, and possesses a wealth of experience and knowledge of the protective coatings field, known nationally for his contributions to coatings and resin developments.

He was associated with The Research Division of a company in Philadelphia for 19 years as Head of the Coatings Section. He is a member of American Chemical Society and Philadelphia Production Club.

Permacel Tape Opens New Warehouse in Detroit

A new Permacel Tape Corp. warehouse, designed to expand service in the Ohio, Michigan and Kentucky area, has been opened in suburban Detroit.

The new warehouse was designed with rigid scientific controls to store the company's pressure sensitive tapes and other products. By controlling the warehouse temperature to approximately 67° F. and keeping the atmospheric conditions dry, maximum prevention against roll distortion and other conditions that affect roll stability, has been assured.

The modern one story warehouse is at 615 Livernois Ave., Ferndale, Mich.

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How We Finish Hospital Furniture

BY JOHN LUKOMSKI
Finishing Foreman, Hard Mfg. Co.

Vapor degreasing of all steel parts and the sub-assemblies; painting by dipping and hand spraying; oven baked enamels in white and in many colors.

AS MOST OF YOU know, at one time all hospital furniture had to be white—a symbol of cleanliness and ultra sanitation. But ideas and practices have changed. It has been established that furniture for the lobby, sun room, waiting room, and even sick room can be kept just as clean and sanitary when coated in pastel colors—and these colors are more lively and cheerful. Now only the furniture for operating rooms, diet and serving kitchens and nurses' supply rooms is finished in white. This latter comprises only about 15% of our production. For the balance we apply 40 different colors, all in pastels.

All Metal Surfaces Cleaned In a Vapor Degreaser

In preparation for painting, about 90% of our furniture is put through a trichlorethylene vapor degreaser to remove light oil, shop smudges and finger marks. Bed ends and some of the other pieces are immersed for three minutes in a zinc phosphate solution at 180° F. This treatment is followed by a hot water rinse at 180° F. These pieces air dry for 45 minutes before they are moved to the spray booth.

Baked Finish Must Be Resistant to Acid, Alcohol

With the exception of our standard line of metal bed spring frames, all of the furniture is spray painted. This is desirable for several reasons. First, the quality of finish demanded; second, the size and shape of various pieces, and third, the wide variety of colors required.

All of our enamels regardless of color, are alkyd resin-base materials —alcohol resistant and acid resistant. This feature is important for hospital use. Viscosity will range from 18 seconds to 25 seconds at 78° F., as measured in a No. 4 Ford cup, according to color. Enamels are sprayed at an atomizing pressure of 60-lbs., and a fluid pressure of 20-lbs.

Regardless of color, all of our enamels are formulated to cure at the same temperature, and for the

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You can now select plastisols to meet not only heavy duty service needs but also your production methods. Unichrome Plastisol Compounds are available for spraying, for cold dipping or hot dipping, for electrostatic spray, for slushing, knife, trowel or roller application.

And remember, a Unichrome Plastisol vinyl finish delivers unusual resistance to chemicals and abrasion . . . rich, satiny luster . . . chip and crack-proof resiliency . . . thick or thin film build-up as desired, with a single application . . . and seam-free and pore-free protection.

As a pioneer in the field of plastisol coatings, United Chromium can give you sound help in selection. Send for Bulletin VP-1.

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COVERAGE RATES

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METAL PREPARATION

DUPONT Industrial Finishes Technical Bulletin

ROOM AIR-CONDITIONING UNITS

BULLETIN NO. 11 FIRST EDITION

APPEARANCE AND PROTECTION

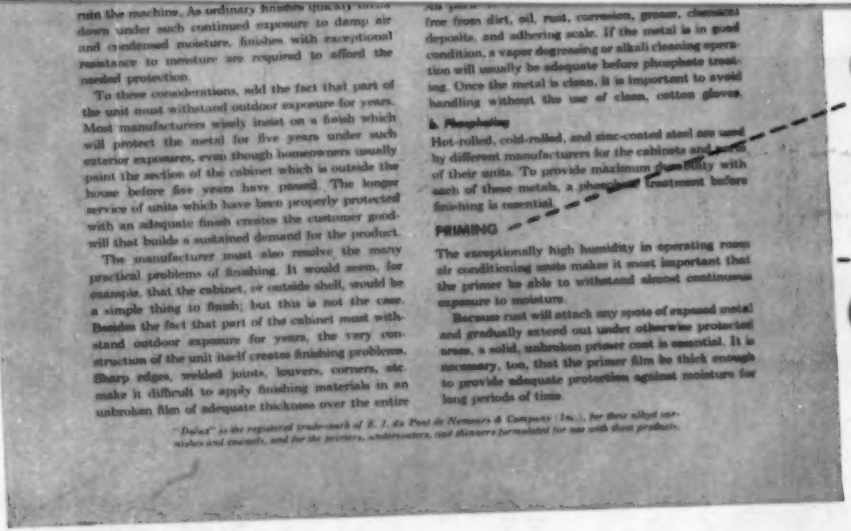
Product appearance is an important consideration in every sale. When the product, like room air-conditioning equipment, becomes part of the home furnishings, attractive appearance is essential.

But, the finish does more than make the product attractive; it protects and prolongs the life of the unit. As the air inside an operating unit is humid, often to the point of saturation, moisture condenses on the inside of the cabinet and the functional parts. For this reason, the framework, supports, and operat-

unit. Yet, such a film is necessary to resist moisture and corrosion.

The many problems likely to be met in applying finishes to room air conditioners are briefly outlined in this bulletin. It is based on the experience gained in helping designers, production engineers, and finishing foremen in the air-conditioning industry solve their finishing problems. We hope this report will help you produce beautiful, marketable units which are thoroughly and completely protected to give years of service.

METAL PREPARATION



ruin the machine. As ordinary finishes quickly break down under such continued exposure to damp air and condensed moisture, finishes with exceptional resistance to moisture are required to afford the needed protection.

To these considerations, add the fact that part of the unit must withstand outdoor exposure for years. Most manufacturers wisely insist on a finish which will protect the metal for five years under such exterior exposures, even though homeowners usually paint the section of the cabinet which is outside the house before five years have passed. The longer service of units which have been properly protected with an adequate finish creates the customer goodwill that builds a sustained demand for the product.

The manufacturer must also resolve the many practical problems of finishing. It would seem, for example, that the cabinet, or outside shell, would be a simple thing to finish; but this is not the case. Besides the fact that part of the cabinet must withstand outdoor exposure for years, the very construction of the unit itself creates finishing problems. Sharp edges, welded joints, louvers, corners, etc. make it difficult to apply finishing materials in an unbroken film of adequate thickness over the entire

free from dirt, oil, rust, corrosion, grease, chemical deposits, and adhering scale. If the metal is in good condition, a vapor degreasing or alkali cleaning operation will usually be adequate before phosphate treating. Once the metal is clean, it is important to avoid handling without the use of clean, cotton gloves.

b. Phosphating

Hot-rolled, cold-rolled, and zinc-coated steel are used by different manufacturers for the cabinets and parts of their units. To provide maximum durability with each of these metals, a phosphate treatment before finishing is essential.

PRIMING

The exceptionally high humidity in operating room air conditioning units makes it most important that the primer be able to withstand almost continuous exposure to moisture.

Because rust will attack any spots of exposed metal and gradually extend out under otherwise protected areas, a solid, unbroken primer coat is essential. It is necessary, too, that the primer film be thick enough to provide adequate protection against moisture for long periods of time.

"Dulux" is the registered trade-mark of E. I. du Pont de Nemours & Company (Inc.), for their alkyd varnishes and enamels, and for the primers, undercoaters, and thinners formulated for use with these products.

PRIMING

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Gentlemen:

Please send me, free of charge, your new bulletin on finishing room air-conditioning units.

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*Firm*_____

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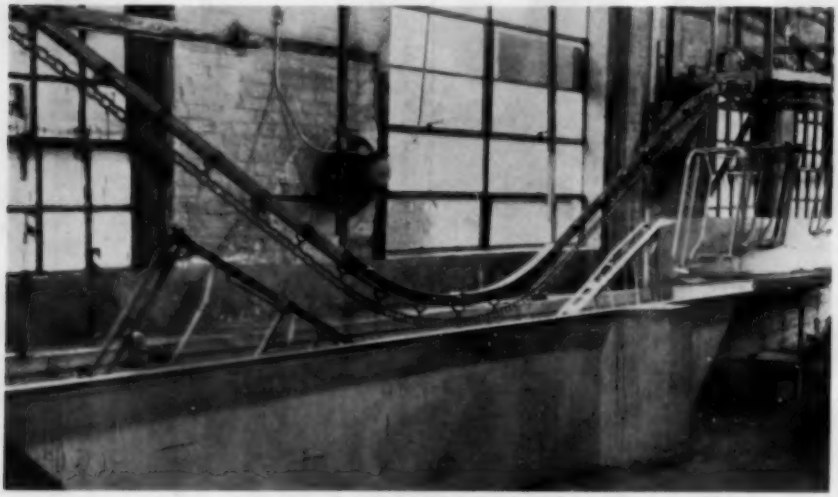


Steel bed spring frames are painted by conveyor dipping as shown here.

same baking time. We use indirect gas-fired batch-type convection ovens and bake the finish for 30 minutes at 300° F.

Bed Frames Are Dip Coated; Baked at 300° F., 18 Minutes

Standard bed spring frames are painted by conveyor dipping. The overhead conveyor chain is driven through a variable-speed drive at 16-in. per minute. The frames are carried down into the coating material by means of a U-dip in the conveyor.

The 1200-gallon dip tank is equipped with a forced circulating system which pulls paint from the bottom of the tank and pumps it back into the tank just below the top surface of the enamel. This continual circulation keeps the enamel well mixed at all times; and the gentle current caused by the flow of enamel back into the tank carries any bubbles away from the exit end of the tank. If bubbles were allowed to remain on the surface where the coated frames emerge from the coating material, some of the bubbles would cling to the dip coated work and eventually mar the finish.

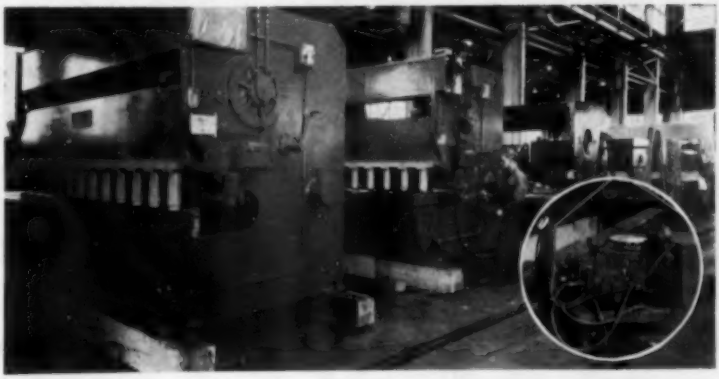
Our dipping enamel is kept at a viscosity of 28 seconds at 78° F., as measured in a No. 4 Ford cup. After leaving the dip tank, frames pass over the metal drip pans before they enter an infrared electric oven where the finish is baked for 18 minutes at 300° F.

Joyce Is Made Chairman Too

Directors of The Glidden Co. elected Dwight P. Joyce to the position of chairman of the board and re-elected him president of the company at the directors' meeting following the annual meeting of shareholders in Cleveland, Ohio.

As chairman of the board, Mr. Joyce succeeds to the position filled by his father, the late Adrian D. Joyce, until the latter's death last August.

SPRAY PAINT IT ON THE SPOT!



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ADAPTABLE TO FIT YOUR NEEDS

DO IT WITH BEDE *AIRLESS* SYSTEMS

The Bede Airless Atomization Paint Spraying System illustrated above is located at The Cleveland Crane and Enginering Co., Wickliffe, O. . . . manufacturers of Tramrail Systems and STEELWELD Press Brakes, Shears and Presses.

The revolutionary Bede System incorporates the application of heated materials and hydraulic pressure . . . eliminating entirely the need for compressed air for atomizing purposes.

Bede Spray Systems have made it possible to spray paint these machines in the open, completely replacing slow and expensive brush painting methods. Cleveland Crane people say they are now using less paint, and that they are doing the job in less time than ever before.

Let us demonstrate what Bede Spray Systems can do to lower your finishing costs.

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DEPT. U. S. A.

Lacquer Troubles on Wood

What causes and how to prevent pinholes; blistering; pitting; pock marks; orange peel effect; blushing; printing; slow drying; poor adhesion; surface cracking.

BY R. H. WAMPLER

LACQUERS ARE AMONG the most foolproof and versatile materials used for wood finishing. They dry rapidly and give a tough, hard, durable finish. But, of course, their use is not always unattended by difficulties of one sort or another. Some of these difficulties are peculiar to lacquers, and others are common to some other finishing materials.

If a representative of your lacquer supplier is available, consult him about any finishing troubles you have. An experienced salesman, service man or laboratory technician representing your lacquer supplier is intimately familiar with all performance characteristics of the lacquer and solvents that his company sells, and if he has an opportunity to look over your finishing facilities and your way of doing things, he can quickly determine the cause of any trouble you may be having. This is usually the quickest and surest way to find out what is wrong and to learn how to remedy it fast. When such a trained and experienced man's knowledge and services are available, why experiment or look elsewhere?

Pinholing, Pitting, Blistering; What Causes Them

Pinholing, pitting and blistering are defects that may or may not be related, depending upon the cause. And many things may cause them. Pitting or pinholing may be caused by failing to apply a sufficiently wet film when spraying. Under any given set of conditions, a certain minimum amount of lacquer must be applied per unit of surface area to insure a wet, continuous film. Any less will leave a discontinuous film pock-marked by pinholes. The surface tension of a too-thin film is responsible for its failure to completely wet the surface.

Likewise, lacquer coats that are too thick will cause pinholing or blistering. Lacquer dries rapidly and, at usual film thicknesses, the solvents diffuse through the film and evaporate without disrupting it. If the film is too thick, however, the surface may set before the solvents in the underlying film are evaporated completely. The result is the formation of bubbles and blisters that cannot burst and flow out because the surface is no longer fluid. In rubbing, these bubbles may be cut through and, as a re-

The chameleon is known to change his color scheme at will . . . varying his appearance to blend with the protective surroundings at hand.

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specialty finishes . . .

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sult, the surface is pock-marked by pinholes. Anything that causes too-rapid film setting increases the danger of this trouble. For example, a strong draft across the wet film, the use of too-fast solvents and thinners, excessive air pressures in spraying, and force-drying before the film is set. This is often called "solvent trapping."

In one case of blistering of lacquers on novelty furniture it was discovered that the faulty areas received too many passes of the gun. Not only was too much lacquer deposited, but also the drying effect of the atomizing air over the surface produced too-rapid setting. Revising the spraying pattern to eliminate this doubling back stopped the trouble.

Faulty Surface Preparation or Filling, Spraying or Drying

Among other causes of pits, pinholes and blisters in lacquer are poor filling, moisture in the wood, insufficient drying time over chemical bleaches, too early or too drastic force-drying.

Pits, pinholes and blisters are related in that they are often manifestations of the same thing. For example, a pinhole may be a blister that has burst, and a pit may be a blister or bubble that has burst and almost flowed out.

In troublesome cases, it is often found that slowing down the setting of the lacquer with retarder will remedy or minimize the condition, if other fundamental remedies do not relieve it.

Poor flowing of the lacquer usually manifests itself as "orange peel." It is usually caused by the wet film setting before enough time has elapsed for it to flow out perfectly. Drafts over the wet film, too high air pressure when spraying, excessively high temperature of the air or of the surface being coated, too-fast solvents, and too-thin wet films—any one or more of these may cause poor flow. In addition, some lacquers inherently have poor flow because of poor solvent balance or because some of the solid ingredients have excessively high viscosity.

Blushing — Milky White Spots in Lacquer Film

Blushing is the formation of dull, whitish spots in the lacquer film, especially apparent in transparent lacquers. Blushing appears just after the lacquer is sprayed, and it may or may not disappear as the lacquer dries. Its fundamental cause is the cooling of the air in contact with the wet film below its dew point. Moisture precipitates on the wet film and forms a whitish emulsion. In extreme cases some of the nitrocellulose may even be precipitated, although that is not necessarily the cause of the milky white spots.

Needless to say, the condition occurs only when the relative humidity or the moisture content of the air is high. Evaporation of the solvents cools the film, and if the dew point is only a few degrees below the air temperature, evaporation may cool it enough to precipitate out some of the moisture.

It should be understood that under extreme conditions almost any commercial lacquer may blush. Most lacquers are safe under prac-

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The newest and most scientifically balanced rapid-drying wiping stains yet developed.

Are available in a full range of transparent and semi-transparent colors, give excellent uniformity and natural beauty to different grain wood surfaces.

May be sprayed, brushed or dipped; will wipe easily to a uniform color. Will air dry in two hours and kiln dry in one hour or less depending on the degree of temperature.

Are moisture resistant and penetrate the wood fibers deep enough to give excellent adhesion to top coat finishes.

Mac's Dura-Plas Wiping Stains produce an extremely tough finish that will not readily scratch nor mar nor become brittle when used under sealer and lacquer, conversion varnish, THERMO-LAC or any acceptable top coat finish.

When ordering advise color desired and the kind of wood on which it will be used. Order five gallon trial can at drum price and convince yourself!

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tically all conditions that may commonly prevail. However, a lacquer with a too-fast solvent combination, or one that is otherwise poorly balanced, may blush easily.

In most cases the slight whitening disappears as the lacquer dries. If it is not all gone in 15 or 20 minutes it may be permanent. A slight permanent blush will usually disappear if the film is recoated with lacquer. Severe cases may be corrected by spraying with lacquer thinner, which resoftens the film and puts it into homogeneous solution again. Under conditions that favor blushing—warm, humid atmospheres—the addition of one to five percent lacquer retarder will usually serve to prevent it.

Some Causes of Poor Drying Of the Lacquer Film

As far as drying goes, lacquer is perhaps the most foolproof coating in common use, but there are times when it fails to dry fast enough or hard enough. The result is "printing" and other troubles.

Traces of paraffin wax [on the surface being coated] will keep a lacquer film wet for days. Such residues may have been left in corners and crevices by the previous use of a paint or varnish remover containing wax. This wax should always be washed off all of the surfaces with lacquer thinner. It may be removed from carvings, corners and crevices with a small brush dipped in lacquer thinner.

Grease or oil from the underlying surface, from containers, or from the compressed air line—any of these may cause the lacquer to dry slowly. The use of too much retarder may keep the film soft or tacky for hours or even days.

If a heavy lacquer film is built up by applying many coats of lacquer over a short period of time —say an hour or two—the film may hold in most of the heavier solvents for days. If this heavy film must be put on in a short time, it may be desirable to accelerate the drying in a suitable drying room or "oven" for two or three hours to put it in satisfactory condition for rubbing, and to avoid any possibility of printing or shrinkage. However, overnight air-drying of a 3-coat system applied within two or three hours is usually satisfactory.

"Wow! Did you get a look at the new doll in the shipping department?"

Adhesion of Lacquer Film

Poor adhesion of lacquer films on wood is often caused by the use of a poor quality lacquer sealer.

[*Continued on page 76*]

You too CAN CUT FINISHING COSTS WITH

PERFEX SATIN FINISH

CHECK YOUR FIGURES WITH THIS CASE HISTORY:

	"X" Company	Your Figures
Cost of top coat lacquer (two coats) per year	$10,000	$_____
Less 50% (one coat Perfex equals 2 coats of lacquer)	$ 5,000	$_____
	$ 5,000	$_____
Less 10% (saved since Perfex costs less than lacquer)	$ 500	$_____
Cost of PERFEX	$ 4,500	$_____
Less 20% (labor costs saved by eliminating second coat)	$ 1,900	$_____
ACTUAL cost for PERFEX Finish	$ 3,600	$_____
SAVINGS PER YEAR WITH PERFEX . .	$ 6,400	$_____

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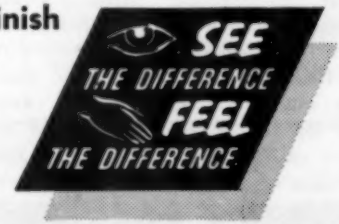

IF YOU MANUFACTURE FURNITURE, WRITE US FOR SAMPLES OR DEMONSTRATION

Perfection PAINT & COLOR COMPANY

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The use of a very fast-setting, quick sanding, brittle sealer has been known to result in poor adhesion of the lacquer finish. The sealer should set slowly enough to penetrate the wood surface somewhat. It should contain only enough "sanding aid" to give satisfactory sanding. An excess will cause brittleness. In addition, the film of sealer should be elastic enough to confer reasonable toughness to the finishing system.

However, poor adhesion can be caused by other things. The real cause may be something in connection with the filler, the stain or the wiping glaze used. These materials must be used with descretion, and they should be selected with good adhesion as a requisite.

Cracking of Lacquer Film; Excessive Film Thickness

Cracking of a lacquer film is usually thought of as being a property inherent in the makeup of the lacquer. While this is sometimes partly true, application and the substrate also can have a vital bearing on this trouble. For example, excessively thick lacquer films, built up with many coats, are more likely to crack than films of less thickness. This is true of some very elastic lacquers. One cause may be the stresses that are set up in excessively thick films.

Films of lacquer are much more likely to crack over a wood or substrate that has poor dimensional stability. For example, a dense hardwood such as maple has better stability under varying conditions of moisture than a less dense, soft wood. That is, it does not expand and contract as much as other woods, so that it imposes less stress in the overlying lacquer film. The dimensional stability of the wood has a vital bearing on the tendency of the lacquer to crack with age or varying conditions of heat and humidity.

For the same reason, lacquer has less tendency to crack over well-made plywood than over unsupported solid wood, especially if the solid wood is thin. The thicker the wood panel, the less will be the tendency of a lacquer to crack over its surface. The better the film is keyed into the wood (that is, the better the adhesion) the less the danger of cracking.

Coat Edges and Back to Reduce Possible Cracking

If an unsupported panel is finished on both sides and around all edges, there will be less tendency for the lacquer film to crack; for example, on the leaves of a drop-leaf table. Finishing around all surfaces makes the wood more stable because it reduces or retards the movement of moisture into and out of the wood. This edge coating and back coating also has the effect of reducing or eliminating warping and cupping of panels that are not firmly fastened down.

To summarize, anything that increases the stability of the wood substrate reduces the tendency of a lacquer film over it to crack. These factors include the effect of different species, thickness of solid wood, how firmly it is fastened down or supported, and whether or not it is finished on all surfaces.

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The answer: savings up to 50% over conventional finishing methods, largely through elimination of indirect labor. Experience on more than 125 DeBurgh finishing systems — in plants large and small — proves this figure. Floor space savings up to 30% . . . flexibility that allows for lower production rates at correspondingly lower costs . . . self-amortization in a matter of months! Get the full story now!

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EVANSVILLE, INDIANA

Want Automatic Spraying

In the "Letters from Readers" section, Dec. 1954 issue, page 80, there are two requests for information on semi or fully automatic equipment to spray and mask small parts. We would like the same information, and would appreciate the names of several firms if possible. We are interested in both automatic or conveyorized equipment for over-all spraying, and automatic or semi-automatic spraying and masking equipment.—*W. J., Inc.*

In a letter we are submitting names and addresses of firms which can supply what you want.—*Editor.*

Finishing Steel Parts

We are finishing steel parts of various shapes and sizes by either spraying or dipping. A large number of these parts are small in size. We have to hang each one on the conveyor hooks. After going through the Bonderizing unit, dip tank and bake oven, we then have to handle each part again to unload the conveyor.

We would like to know if these parts could be painted by tumbling, barrel coating or a centrifugal process. In other words, we would like to dump these parts into a container, paint them, either air dry or bake, unload the container and have a smooth gloss finish on them.—*M.&M.*

We believe that your "best bet" for coating those numerous small parts, without handling same individually, would be to use what is called a centrifugal machine or a combination dip-whirl machine. In a letter we are naming two manufacturers of such machines. Either of them will be glad to coat a batch of sample parts for you and explain in detail what they have to offer.—*Editor.*

CO_2 Spray Gun

We have recently heard that someone is manufacturing a spray gun that operates from a cylinder of compressed carbon dioxide. Can you tell us who makes or sells this equipment?—*J. J. Co.*

We believe that it's Sullivan-Becker Co., 6705 14th Ave., Kenosha, Wis.—*Editor.*

Plastic Undercoating

We are interested in knowing who makes a plastic undercoating for wood or metal finishes.

We understand that Mr. W., of California, that there is an undercoating in plastic that saves a great deal of sanding and gives a very smooth, fine finish to spray over.

Kindly advise us who we should contact regarding this type of product.—*P. C. Co.*

Your finishers probably know that to get adequate adhesion to wood and metal surfaces, they will have to use

You asked for it...

A STRIPPABLE MASKING MATERIAL TO WITHSTAND 375° BAKING CYCLES

and here it is...

"LIQUID ENVELOPE" STOP-OFF #6626

This time-tested "LIQUID ENVELOPE" strip coating is excellently adapted to finishing operations where a coating must be baked several times but where it is also necessary to mask off certain areas. With proper reduction this formulation may be sprayed. Or it can be brush coated to produce a film thickness of approximately 4 mils. It is freely strippable after being baked at 400° F. for 15 minutes.

For data, price and sample, phone or write

BFC PAINTS · PLASTICS · CHEMICALS

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, New Jersey
MArket 3-2663

122 East 7th Street, Los Angeles 14, California

a suitable primer coat; and that the wood or metal surface to be finished will have to be perfectly smooth and clean before any kind of coating is applied.

To our knowledge there is no "magic" plastic coating that will do what you intimate in your letter. For suitable finishing materials to give you the kind of finish you want we suggest that you contact the leading manufacturers of finishing materials, such as you see advertised in this magazine. . . .—*Editor.*

"Oh, roller coater . . . I thought the boss said I should apply the glue sizing solution on a roller coaster!"

Finishing Problems; An Offer

After reading "X. Co.'s" inquiry for a "Finish Consultant" on page 88 of Feb. 1955 issue, I take the liberty to write you and ask your opinion in respect to setting up a finish consulting service as an independent, without any connections with finish manufacturers. Such a setup has been on my mind for quite some time.

It is my opinion that there is a need in the wood finishing industry for people of this type. . . . An independent consultant would have no axes to grind or competitive materials to represent and, therefore, could give an unbiased opinion as to conditions and remedies in each case.

For about 27 years I have been a finisher in all types of wood finishing —most of the time with nationally known furniture manufacturers.

In one plant, for example, I successfully managed the finishing of fine bedroom and dining room furniture on practically the first conveyor installed in the country for finishing furniture. This conveyor was installed about a year and a half before I went there, and with all the "experts," they could not operate it successfully.

When I left this position we had four finishing conveyors in operation —one overhead for straight line production finishes, one for enamel finishes and two for custom and customer match-up finishes. In addition to that, I developed all of the colors and. . . .—*Mr. Z (Name on request.)*

To Paint Fishing Lures

We have encountered trouble with the painting of our artificial lure. After trying many different undercoats, paints and woods, we find that after being in water a short while the paint on our lure cracks and chips.

Mr. D. F. Laughnan of Forest Service tells us that some time ago he saw an article in *Industrial Finishing* about finishing a product such as ours. Could you supply us with a reprint of that article or any information to cover our situation.—*C. Bait Co.*

We are sending you a copy of May 1948 issue of *Industrial Finishing Magazine* which contains an article

a proven

Cabinet Lacquer

(27% HIGH SOLIDS)

BARRETT'S Cabinet Lacquer is a 27% solids, cold spray, wood finish. It is recommended for use on furniture, TV and kitchen cabinets, shelf goods, toys and other wooden objects where an economical, full tough coating is desired.

BARRETT'S Cabinet Lacquer rubs and polishes nicely. Tests show that the film has excellent alcohol resistance. This Lacquer has been in production for some time and has been well received in the trade.

Solids: 27% **Color:** Pale Straw*

Alcohol Resistance: Excellent **Rub & Polish:** Machine or hand

Sheen: 25, 50, 75 and full gloss or made to your specification.

Cold Check Resistance: 15 cycles on 3-ply walnut and mahogany veneer.

**For light blonde finishes ask to see our water-white cabinet lacquer.*

TRY IT YOURSELF! You are invited to write on your company letterhead for prices and a free sample of this better cabinet lacquer, specifying Sheen desired. Data Sheet is also available.

Barrett Varnish Company

1532 S. 50th COURT CICERO 50, ILLINOIS

a complete line of dependable industrial finishes since 1870

on the subject that interests you, see pages 58 to 64. As to what waterproofing material was used on these plugs, we do not know, but probably you can get it from one or more of the companies that advertise in this publication.—*Editor.*

Air-Fed Striper

Sometime ago we saw an article in this magazine concerning an "air fed paint striper." This tool was used to stripe various products in industry. I would be interested in knowing who manufactures this.—*R. M. Co.*

We do not recall of having published an article about an "air fed paint striper" recently. The only one we know of that might fit this description is manufactured by Paasche Airbrush Co. Other manufacturers of striping tools (but not air fed, we believe) are named in a letter we are sending you.—*Editor.*

"Biddlewhit's pipe kills the industrial odor we have around here, but I'm going to get rid of him and his pipe too!"

Metal Cleaning Problem

We are now confronted with a problem of properly cleaning metal that has been covered with a heavy coat of greasy drawing compound. We have called in a number of suppliers of chemicals, but none, to date, has come up with the solution to our problem.—*P. & M.*

Look over the advertising pages of this magazine, note the manufacturers of metal cleaning compounds, and call in one of their representatives. These men are well informed specialists and can solve your problem quickly.—*Editor.*

Lacquer "Shield" for Windows

It has been called to our attention that there is a lacquer of some type that one can put on windows to prevent the rays of the sun from fading material on display. We are wondering if you can supply us the name of this material and where it can be purchased?—*L. Electric Mfg. Co.*

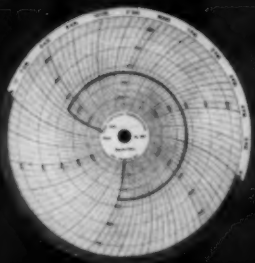
More than a score of concerns are making and selling such a material. In a letter we are naming a few of them.—*Editor.*

Maple Lab. Top Finish

In connection with some shop work which we have for a hospital project, we must furnish some tops for pharmacy rooms which are specified to be acid resisting or carbonized. These tops will be made of strips of solid maple glued up to a width of about 25-in. and a length of 10-ft.

We are eager to get information on treating wood to make it acid resisting. . . . It would help us considerably

Enclosed you will find several of our charts from the recording thermometer which are indicative of the accuracy and constancy of the oven temperature maintained. (Actual photo of a typical Sanymetal temperature chart.)



Here's **Visual Proof** of **Constant Oven Temperature Control...**

Mr. K. W. Benham, Vice President of The Sanymetal Products Co., Inc., writes, "We are sure you will be interested in knowing the results we have experienced in the use of the oven we purchased from you in 1953.

"We are using this oven for baking finishes on metal toilet compartments, using twenty-two standard colors in the pastel shades. Many of these colors range from a white to light creams and ivories and due to constant even temperatures we have experienced highly satisfactory results in getting uniform color and complete baking.

"We are very well satisfied with the equipment and the service given us by your company."

The Sanymetal Products Co., Inc.

A typical battery of Sanymetal Toilet Compartments

LANLY FINISHING OVENS
THE LANLY COMPANY • 760 PROSPECT AVE
CLEVELAND, OHIO

You too can do a better job with LANLY finishing ovens

WRITE FOR THE CATALOG

if you could suggest manufacturers who might furnish complete treated tops so that we would not have to treat them in our shop.—*W. Lbr. Co.*

In a letter we are naming several finish manufacturers which can supply materials and directions for the work you have in mind.—*Editor.*

Keeping Colors Accurate

Referring to page 84 of January issue—the question and answer entitled, "Color Change in Master Samples"—there is another method which is proving quite satisfactory in accomplishing color control. It is the Bowles Color Drift Control System, which we have used for some time and it is being more and more widely accepted. You can obtain full information regarding this by writing to Mr. Sam O. Bowles, President, Bowles Printing Corp., 75 Third St., San Francisco 3, Calif.—*Cook Paint.*

"Boy! What a temper! He told me to get a formrite brass and I thought he said Formrite Bras!"

Paper Paint Cups

Up until three years ago we purchased some KR-431 paper paint cups from The DeVilbiss Co. We were told by them at that time that they were no longer carrying these cups. Do you have the names of any firms who make cups similar to the above?—*C.C.*

Yes, try Bradford Products Co., 2021 Cass Ave., St. Louis 6, Missouri. —*Editor.*

Distressing Tools

Is there such a thing as a kit of "Distressing Tools" for use in simulating an antique effect on wood furniture? We have a customer interested in obtaining such tools and directions on how to use them.—*Z. Co.*

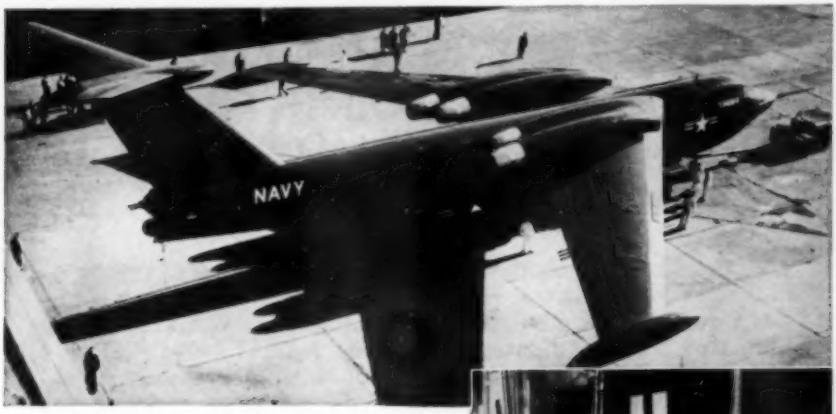
Who Makes "Proof-Coat"

We have an inquiry from a customer who specifies "Proof-Coat" paint, and we wonder if you can tell us the name of the producer of this material. We understand this is made in Cambridge, Mass.—*F.*

Your customer might have in mind a product of Prufcoat Laboratories, Inc., 50 E. 42nd St., New York 17, N. Y.—*Editor.*

It's Chemical Coatings Corp.

In the news item in Feb. issue, page 72, you have our name spelled without the "s"; in other words "Coating" instead of "Coatings". Without the "s" the name infers that we do coating work, which is incorrect. We manufacture and sell specialized industrial finishes or "coatings."—*The Chemical Coatings Corp.*



LACQUER FOR A GIANT

New multi-jet flying boats, weighing as much as 85 tons, are finished with an all-lacquer system to protect hulls and wings against salt water corrosion. Unsurpassed in drying speed, lacquer reduces application time as much as 50 per cent; is being used by both manufacturers and airlines.

THE "IDEAL" FINISH

Rway Furniture Company wants a furniture finish that sprays easily, dries rapidly, produces a rich finish with a minimum of rubbing, and has durability. To meet those qualifications the company uses "hot lacquer" for the ideal finish at minimum cost.

"ELASTIC" INK

Another indication of the versatility of nitrocellulose is its use as the film-former in inks for new packaging materials such as Mylar, Saran, and Saran-coated cellophane. Nitrocellulose helps provide the necessary flexibility, hardness and marproofness.

For further technical or marketing information on these or any other developments in lacquer-type coatings made from nitrocellulose, ethyl cellulose, cellulose acetate, or Parlon® (chlorinated rubber), write to.

Cellulose Products Department
HERCULES POWDER COMPANY
928 Market St., Wilmington 99, Del.

CL55-1

"OUR COST ENGINEER INDICATES THAT WE ARE DOING TWICE AS MUCH WORK WITH HALF AS MANY MEN."*

Dramatic? Unbelievable? Yes, we admit that this is an extreme case. But a rule-of-thumb developed through our experience with more than 140 installations in all types and sizes of plants indicates that we do increase efficiency and hence savings of approximately 50% over push-pull finishing methods.

Photograph of indirect labor being eliminated at Grand Rapids Chair Co., Grand Rapids, Mich.

Do you have the impression that your techniques are not suitable to DeBurgh Conveyorization? Short processes — long processes —may all be integrated on the same timed system.

You owe it to yourself to investigate, unless you are completely satisfied with your current net profit.

Free booklet—free engineering service—showing what we can do for you, your plant, your product, your production and your techniques. WRITE TODAY!

*Name on Request

"Designed BY a Furniture Manufacturer FOR Furniture Manufacturers"

Investigate!

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EVANSVILLE, INDIANA

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RV

ROCKFORD, ILLINOIS

MANUFACTURERS OF PROTECTIVE
AND DECORATIVE FINISHES

Any nomination for "favorite blonde" today? We like to think this lass is in the act of nominating *her* favorite producer of protective and decorative finishes. But then, you never can tell — so we shall speak out for ourselves. "We make a complete line of standard and special industrial finishes of all kinds: paints, enamels, varnishes, lacquers, and a number of interesting specialties. Our facilities are unsurpassed for developing products to meet your needs. Our willingness is unexcelled. May we ask for an opportunity to discuss your problems?" You *might* become our "favorite customer" . . .

Affiliate: GORDON BARTELS CO., *Roller Coating Specialists*

More on Paint Specs.

I refer to F.S. Co.'s question entitled, "Paint Specifications," as published in Feb. 1955 issue, page 86.

Outside of setting up your own testing system for paints, there are two alternatives open to your company. Either should assure you of obtaining satisfactory finishing materials.

1) You can get copies of the various U.S. Government Paint Specifications. These can be obtained from the Scientific Section of the National Paint, Varnish & Lacquer Association, 1500 Rhode Island Ave. N.W., Washington 5, D.C. You might suggest that you are interested in specifications that would be suitable for products similar to those you manufacture. From these you can select materials which suit your needs and equipment. By ordering according to such specifications, you will have reasonable assurance that you are getting a finish of better than average quality.

2) Your other alternative is to place your problem in the hands of any reputable paint manufacturer. There are many of these, large and small, advertised in the pages of *Industrial Finishing Magazine.*

Should you select a large manufacturer, he can offer his record of case histories which he has solved, and which have stood the test of time. Many of these case histories will be for products similar to your own, designed for use in equipment similar to yours.

On the other hand, the smaller paint manufacturer can give you materials that are custom-fitted to your needs plus, in some cases, a more personal type of service. Moreover, since your requirements may be small at first, your business may be more important to the smaller companies. In fact, some of the larger paint manufacturers are not interested in very small orders.

Many manufacturers with problems similar to yours have solved their lack of paint knowledge by *trusting the judgment of a reputable paint manufacturer.* In numerous instances these concerns have now grown to the point where they could easily set up their own laboratories, yet they are still trusting those same paint suppliers—and dispensing with that extra testing expense. I strongly urge you to do likewise.—*G.C.*

A Flow Coating Setup

We are writing with reference to Feb. 1955 issue, and an article on page 39 by Mr. X—the one called "Dipping; Flow Coating Go Modern—1" .... We are seriously and urgently in need of information on flow coating.

We are presently flow-coating parts with a home-made flow-coater and we are eager to learn as much about the art as we can from other's experiences. I refer to it as an "art" because there is still very little specific written material on the subject, even though it was the predominant painting method when American Line Production was in its infancy.

We would like to request a reprint copy of the entire article series. Our

National Sanders

CAN SPEED PRODUCTION IN YOUR FINISHING OPERATION

Whether you need an orbital action sander for fast stock removal, or a straight-line action machine for working with the grain, National has the sander you need. They have a proven record of reliable and efficient service, long life, ease of operation, and for producing the best sanded surface in the shortest possible time. Let us send you full information . . . write today.

MODEL 300

NATIONAL NS SANDERS

NATIONAL AIR SANDER, INC.

2820 AUBURN ST., ROCKFORD, ILLINOIS

intention, of course, is to learn things which may save us considerable costs over the next few months rather than wait several months to see the articles as they appear in *Industrial Finishing.—L. Metal Products.*

This complete series of articles isn't in type yet.

In the meantime we suggest you order a copy of E. A. Zahn's 296-page illustrated book on this subject, as advertised on page 112 of February issue.

If you have much production and expect to do real quality work, perhaps you should replace your home-made outfit with a professionally engineered flow-coating setup which can be supplied by concerns that have had experience in designing and installing flow-coating equipment. They can guarantee results. In a letter we are naming some of them.—*Editor.*

Why Lacquer Enamel Chips Off Yo-Yos

We are sending you two samples of wood turnings. [They are yo-yos in color.] As you see, the finish chips off. We want to find out the cause of that chipping and how to prevent it. We can not get satisfactory explanations from our suppliers of finishing materials, as most of these defects don't show up at our plant, but only later.

It seems that the lacquer coating gets brittle after a few months, which the suppliers of the finishing materials deny. We also notice that the trouble occurs only during the winter months. We wonder whether storage in an unheated warehouse might be the cause?—*W.G.Co.*

Do you apply a sealer coat before putting on the lacquer enamel? My suggestion is that you strive to obtain a lacquer sealer or thin wash coat (a very thin lacquer-base material) that will "bite" into the wood to give maximum adhesion. After this thin sealer coat has been applied and is dry, then follow with your color enamel coats. (I presume you put on more than one coat by the tumbling process.)

Have you asked your finish supplier for a good sealer coat to use on the bare wood? It would seem to us that this should be the answer to your problem, even though it does add an extra operation.

We assume that you are making sure there is no trace of wax or oil on the bare wood before the finish is applied. If any trace of wax or oil appears on the wood surface before applying the finish, this would tend to kill the adhesion of lacquer to the wood.—*N.C.*

The condition that appears on the two samples is not unusual. . . . Upon checking the adhesion I find it to be poor all over, but the sides are far better than the edges. This, I believe, indicates an excess moisture condition because the sides are of a flat grain nature while the edges are variable—ranging from end-grain to semi-flat grain.

Once moisture is in the wood it will have to come out and it will follow the lines of the least resistance, this being to follow the natural grain and exit through the ends. The (inner) flat sides of these turnings are not finished (the inside of the yo-yo). It may help the adhesion of the lacquer enamel if these were sealed with a good sealer. I suggest that you take a moisture test on these before and after finishing and again while they are in storage, and still again before they are shipped. I believe the cause of your trouble will be obvious after making these tests.—*A.G.*

WOOD GRAIN PRINTING . . .

Machines of Quality and Durability

Over one-hundred Model V-27 vertical type machines now in production have printed more than six-million cabinets.

A proven tool, of rugged construction that can stand long hours of continuous production without interruption.

Can also be adapted to use for panel work. Maximum height 40".

The Model H-128 horizontal machine designed especially for flat panels up to four-feet wide. The print is continuous. Work of unlimited length can be grained. A timing device permits spot or register printing. All installations are supervised by a trained service man without cost.

Over Thirty-Years' Experience in the Design and Building of Fully Automatic Graining Equipment

For further information write or phone. MA-1352

HAMANT TOOL COMPANY

2916 E. SECOND ST. **DAYTON 3, OHIO**

Early American Finish on Pine Furniture

I would like some information on how to produce the antique finish used on pine furniture, such as is commonly seen on early American style furniture. I have read numerous books on furniture finishing but have never found any information on this type of finish.—*C.J.*

There are so many of the antique pine finishes, and systems of finishing are so varied that it is difficult to describe a satisfactory procedure unless the specific effect wanted and the exact color are known, such as shading, highlighting, mellow coloring by age, etc.

The original pine pieces of the early American period that you see today—that is, the real antiques—were built, sanded and received two or three applications of linseed oil; and that was it. The deep warm colors came from "aging" or the natural mellowing of the wood. The deeper colors that give so much depth to this finish color comes from years of cleaning, wiping and working some of the finest dirt and grease residues into the wood, giving a soft shading effect.

An easy way to duplicate this effect is to apply a pigmented material that is diluted to the point where it is transparent. This will de-accent the grain and give a uniform base color. What color? Go shop the stores and take your pick. This is up to the individual taste. Next step would be to apply a sealer to protect your base coat. Allow the sealer to dry; then sand with a fine finishing paper.

Of course, all antiques are scratched and beat up in general, so go out and get a clinker about the size of an eggplant, and roll it around on the surfaces, using enough pressure to secure a multitude of deep marks, dents and scratches. When the piece looks as if great-grandma was a careless housekeeper, add to the effect by applying a dark brown glaze. Put on a good wet coat and then wipe the surfaces clean. Brush the excess from the cracks and corners toward the center of the surfaces and blend with a brush until a soft shaded effect is obtained. Next, apply a coat of clear finished material of about No. 20 sheen. Let this dry and go over all surfaces with No. 4/0 steelwool; then wax the piece.

I intentionally failed to mention the type of sealer and top coats because I don't know what facilities you have. If you want to do this in a well-equipped shop and if your workmen have finish "know how," then I would use lacquer sealer and a lacquer top coat (about 24% solids). On the other hand, if you are going to tell some housewife or hobbyist how to do it, then you had better use shellac as a sealer and varnish as a top coat.—*Mort.*

PAINT TESTING LABORATORY
Any test in F. S. TT-P-141b
PENNIMAN & BROWNE, INC.
Chemists-Engineers-Inspectors
341 St. Paul Place-Baltimore 2, Md.

Turco Products Appointment

Turco Products, Inc., Los Angeles manufacturer of metal cleaning compounds, announces the appointment of Archie K. Beard as manager of its Metal Processing Division and also Eastern Divisional Manager of its new Chem-Mill Division. Mr. Beard will headquarter at Turco's eastern plant in Newark, N.J.

In his position as manager of Turco's Metal Processing Division, Mr. Beard will be in charge of national sales to all heavy industry, other than to transportation accounts.

with variety of unique qualities that meet almost any production finishing requirement!

S-1172 White Baking Enamel is adapted to a variety of baking cycles. Highly *resistant to salt spray* and *humidity. Excellent color* and *gloss retention. Superior adhesion, hardness, flexibility* and *durability.* Ideal for all types of appliances, cabinets, steel furniture.

S-1226 Acid-Resisting, White Baking Enamel. Highly *resistant to alkalies, detergents and greases* as well. Recommended for laundry and laboratory equipment, kitchen cabinets, appliances, shower stalls.

PX-8403 Heat-Resistant, White, Alkyd Baking Enamel is the *most non-yellowing* on the market. In addition, it also has all of the outstanding qualities of S-1172 and S-1226. Recommended for water heaters, ranges, washers, dryers.

THE O'BRIEN CORPORATION, SOUTH BEND 21, INDIANA

Write today for data on O'Brien's New White Baking Enamels!

O'BRIEN

INDUSTRIAL Since 1875 FINISHES

Dipping; Flow Coating Go "Modern"—II

SUCCESS in dip and flow coat application of paint depends upon a number of factors. One of these is control of the viscosity of the coating material.

First it is highly important to establish the correct working viscosity of the paint. *Viscosity will have a direct influence on complete coverage, film thickness and correct drainage of excess paint from the surface,* based upon available drainage space, facilities, and the speed at which the conveyor is operated. The present trend seems to be toward higher viscosity materials for both dip and flow coat methods of application.

In connection with the establishment of the viscosity of the paint, the temperature at which the material will be applied must also be established. For highly efficient, uniform, trouble free application, both the viscosity and the temperature of the material must remain constant. Therefore climatic conditions, plant structure, and location of the equipment in relation to dry-off and bake ovens must be taken into consideration.

To illustrate, let us assume that the pre-established viscosity of the paint for a specific product is 150 seconds at 78°F., as measured in a No. 2 Zahn cup, and the pre - established correct material application temperature is 85°F. This viscosity and temperature should be maintained throughout the year, regardless of seasonal or room temperature. If the plant

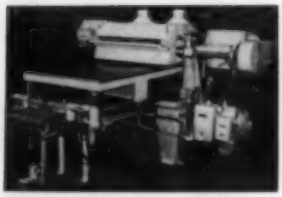
VERSATILE!

It Floats On Air!

The buffs literally ride on air . . . . . insuring uniform buffing pressures at any predetermined degree over flat or curved surfaces!

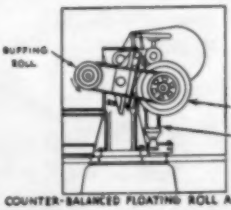
CLAIR SURFACE FINISHING MACHINES

Development of these Clair surface finishing machines is the answer to "demand-performances" from manufacturer's surface finishing departments for precision finishing machines of thorough capability and astonishing versatility.



MODEL 203 This design has anticipated the need for holding the work, with vacuum, regardless of size for surface finishing over the entire area without salvage.

Horizontal Design offers - - -
★ Waist high loading - - less operator fatigue!
★ Better Visibility!
★ Rolls can be changed in two minutes!
★ Easier to exhaust and keep clean!



COUNTER-BALANCED FLOATING ROLL ASSEMBLY

CLAIR

MANUFACTURING CO., Inc., OLEAN, N. Y.

Offering the Most VERSATILE Line of Surface Finishing Machines

is a modern, tight structure, the heat loss from the metal washer, dry-off and bake ovens may eliminate the need for heat exchangers or paint heaters in order to maintain the 85°F. material temperature during the cold months. If it is not, then a thermostatically controlled means of heating the material is recommended.

During the hot summer months this same heat loss from the metal washer, dry-off and bake ovens will likely cause the material temperature to approach 100° or more, depending upon outside temperature. In this case cooling towers connected to a refrigerating unit are recommended to thermostatically control the paint temperature, keeping it down to 85°F.

The best means of controlling viscosity is by a recording viscosimeter which automatically opens a valve to introduce solvent into the paint supply tank as soon as the viscosity rises above the pre-established number of seconds due to solvent evaporation. When the viscosity reaches the pre-established working viscosity, the valve is automatically closed. The next best method is to manually check the viscosity of the paint every 30 minutes, or certainly every hour throughout the day, adding solvent as needed.

There is little use in making a study and doing research to pre-establish correct working viscosity and temperature if they are not constantly maintained.—*Mr. X.*

Bubbles in paint in dip tank? They are produced by agitation of paint, caused by rapid entrance of the parts being dip coated.

Painted Metal Finish Life

A new rust-inhibiting phosphate coating which improves appearance and durability of painted finishes on all metal household appliances, automotive parts, components, metal furniture, etc., is announced by Man-Gill Chemical Co., 2338 Canal Road, Cleveland, Ohio.

BoGard FINISHES

Serving Industry in Ohio, Pennsylvania, Indiana and Michigan with Quality Industrial Paints

Analysis and Continuing Consultation on Industrial Finishing Problems.

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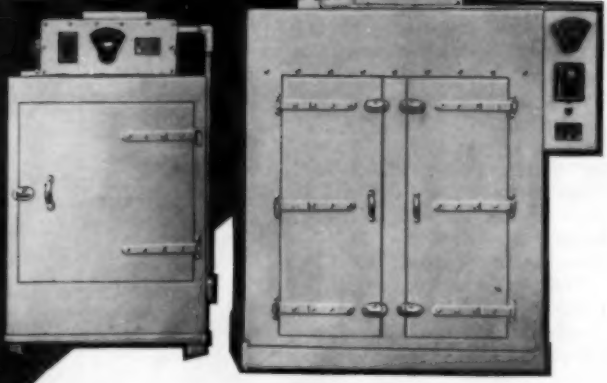
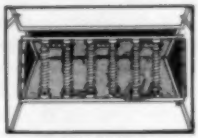
ELECTRICAL OVENS LARGE...

or SMALL SIZES....



Latest Type Indicating Controls



Open Coil Design — Low Gradient

Fiber Glass Insulation

OVENS DESIGNED FOR MODERN DAY NEEDS!

Any manufacturer who has large batch loads to finish bake — with limited floor space Young & Bertke single or two door — gas or electric fired ovens are designed and built for heavy duty work. Easily installed, convenient to move and economical to operate. Present day manufacturing schedules demand modern ovens, temperature uniformity and air circulation. Young & Bertke hi-volume, forced convected ovens affect positive exhaust and controlled air intake adaptable to today's new, synthetic finishes.

Forced Convection Heated

Write Us About Your Particular Finishing Problems.

The YOUNG & BERTKE Co.

OVENS • SPRAY BOOTHS • DUST and FUME CONTROL

2250 BUCK STREET CINCINNATI (14) OHIO

Metalized Film Bonded To Fabrics; Embossed

AUTOMOBILE stylists are really achieving striking new interior effects with "Mylar" polyester film in the new 1955 model cars. The film, metalized with aluminum, is bonded to fabrics, vinyls, or other materials, then embossed in quite a variety of patterns.

This new type "fabric"—metalized to create a silver or gold effect—is used as interior decorative trim in the 1955 Buick, Pontiac, Studebaker, and Dodge.

According to reports, the industry is so impressed with the interior decorative possibilities of the metalized film that many new uses, in a variety of colors and patterns, are under consideration for the 1956 models.

The material has these merits: it enables designers to create new styling effects in a wide range of colors; it has great strength (*Mylar* is toughest plastic film made); it is highly flexible, and has great abrasion resistance. The film is chemically inert, will not dry out or embrittle with age, and is moisture and solvent resistant. It won't fade, and is easily cleaned.

Cost conscious auto-makers also claim the new laminated material is a time saver on the production line. It is easily installed; and it can be shaped around contours and edges.

The decorative material is made by vacuum metalizing a sheet of "Mylar"; the film is subjected to high vacuum

(Continued on page 114)

STRIPPING EPONS

with BECK ECONOSTRIP

is as easy as

DUNKIN' DONUTS!

...and just as FAST—

LOW COST and SATISFACTORY

THE TOUGHEST FINISHES COME OFF CLEAN IN MINUTES!

Because ECONOSTRIP is so free and easy rinsing it really is as easy to use as dunkin' donuts. Immerse work in the stripper, either by hand or conveyorized system and then rinse with fresh water. No stripper scum... Parts are completely clean and ready for refinishing.

Consider these ECONOSTRIP ADVANTAGES

- Remarkably effective for EPONS, Lacquers, Enamels and other tough finishes
- Will not harm soft metals
- Will not remove phosphate coatings
- No scrubbing or manual assistance
- Economical—More jobs per gallon at lower cost
- Recommended by leading finish manufacturers

SEND FOR FREE BULLETIN

BECK EQUIPMENT COMPANY

3350 WEST 137th STREET — CLEVELAND 11, OHIO

New Grain Printing Machine Takes Flat Panels

A horizontal roller machine that takes panels as large as 48-in. wide, is offered by The Hamant Tool Co., Inc., 2916 E. 2nd St., Dayton 3, Ohio.

It is especially effective and efficient for the printing of wood finishes on panels and flat sheets but it can also be adapted to some special items where a flat surface or an irregular form is to be printed. The print is continuous; work of unlimited length can be grained.

This machine has been designed for high production, and provides a steady flow through the finishing process.

Other features are a timing device adjustment to permit register work, timing chain, explosion-proof motor, vertical adjustment of conveyor bed from 0 to 8-in.

The etched cylinder is 12¾-in. in diameter; printing roll 8-in. The machine has an oscillating cylinder doctor blade. Its variable pitch motor pulley provides a 3 to 1 speed ratio.

The company also manufactures a vertical-roller graining machine for graining assembled TV cabinets and many other products and parts.

For more data, circle 1 on colored card.

Gives fast grain reproduction on flat work.

Instant Bake-Finish Stripper

V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill., manufacturer of industrial finishes, reports phenomenal interest in its new "Instant Stripper."

Instant Stripper is offered with an absolute guarantee of satisfaction and it is claimed that most baked and air-dried finishes, including synthetics, as well as lacquer or oil types, are removed almost instantly. In fact, it is formulated to make possible conveyorized stripping to fit in with regular production schedules.

For more data, circle 2 on colored card.

Applicators Now Available for New Sprayable Plastisol

Experienced applicators of chemical-resisting protective coatings are now being qualified throughout the country by United Chromium, Inc., to apply its new sprayable plastisol known as Unichrome Coating 5300. This new application service is intended to make available the advantages of plastisols to companies which lack facilities for applying them.

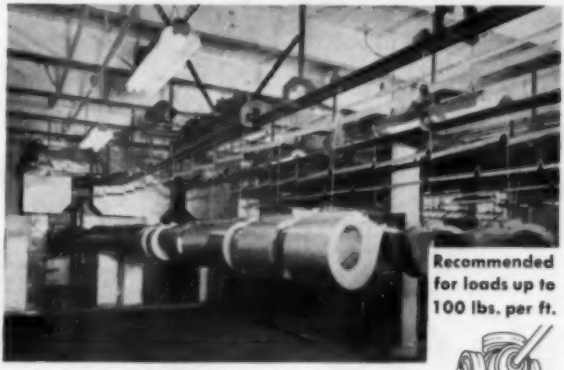
Applicators are qualified on the

CHAINLESS CONVEYOR Cuts Labor Costs 50%

Increases Capacity and Improves Finish

A leading furnace maker slashed paint-spraying labor costs 50% with the Landahl CHAINLESS Conveyor! Elimination of second shift brought more uniform finishing. Capacity of the paint room was increased 33%. Conveyor has no chains, no cables, no take-up troubles. Unique steel-rod connectors pivot freely at both ends, in self-lubricating ball-and-socket joints within the trolley units. Makes shorter turns, weighs less, has fewer parts. Powered by special Landahl caterpillar drive.

Write for Bulletin G-100



Recommended for loads up to 100 lbs. per ft.

LANDAHL **Chainless** CONVEYORS

The LANDAHL CONVEYOR CO., 537 Dennison Ave., Columbus 8, Ohio
A SUBSIDIARY OF THE AMERICAN MONORAIL COMPANY

basis of their experience in working with different types of protective coatings, as well as for their knowledge of the many industries in which protection against corrosion is required.

Unichrome Coating 5300 was developed to permit spray application of vinyl plastisol films of much greater thickness than was heretofore possible.

United Chromium's address is 100 E. 42nd St., New York 17, N. Y.

For more data, circle 3 on colored card.

Pale Clear Alkyd Varnish For Wood and Metal

An extra pale clear alkyd resin varnish that may be used on wood, metal, and linoleum, for either interior or exterior surfaces, has been developed by the paint division of the Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

Resistant to scrubbing and abrasion, the new varnish dries in 2½ to 3 hours and surfaces coated with it can be put into service after 12 hours.

For more data, circle 4 on colored card.

All-Metal Far-Infrared Electric Heaters

Two new-type, all-metal far-infrared electric heaters are being made by Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh 8, Pa., for industrial baking, drying, curing and dehydrating operations.

One type is equipped with a standard medium screw base; the second type has bi-post terminals—and both types can be used to replace infrared glass lamps.

Both new heaters are sheathed in

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TEL: STAMFORD, DAvis 4-7306

Inconel. This all-metal construction resists the vibration and shock. . . .

These heaters produce long wavelength far-infrared radiation that is absorbed by all colors of surfaces with practically equal speed, and with negligible reflection even from white surfaces.

The elements are "self-cleaning," in that any splashed liquids and other materials are burned off.

For more data, circle 5 on colored card.

Automatic Contour Spraying of Automobile Fenders

The automatic spray painting setup shown in the illustration here is at the Nash Motor plant in Kenosha, Wisc. Similar setups are to be found in other automobile factories. Contour spraying machines for automatically spray painting automobile fenders, hoods and other formed components operate on the same principle.

Sprays racks of automobile fenders, hoods, etc., automatically and economically.

NON-INJURIOUS ELECTRO NON-INFLAMMABLE

COLD STRIPPER

FASTEST *in Action* LOWEST *in Price*

WRITE FOR TESTING SAMPLE OR ORDER
5-GALLONS AT DRUM PRICE

Specify whether dip or brush type is desired

Allied Finishing Specialties Co.

2641 W. Grand Ave. • Chicago 12, Illinois

An overhead chain conveyor carries racks of parts into a tunnel-type water-wash spray booth. Usually there are four stations in the machine. Each of these stations is equipped with a mechanism that causes the spray arm to follow the work contour. Every 52 seconds the conveyor moves the racks ahead approximately 8-ft. to the next station and stops "on a dime" because of a magnetic breaking system and adjusting mechanism applied to the drive.

After indexing, the rack is caused to rotate at a definite number of revolutions per minute by means of a friction drive to a wheel fixed to the rack support, just below the conveyor. The spray arm makes one upward or downward pass, *the gun being kept always at a constant distance from the work and at right angles to it,* because of a cam-track that duplicates the work contour.

Fantails are avoided because speeds of rack rotation and arm traverse are related to give a 2-in. overlap per revolution. Edges of the pieces are effectively coated by aligning the spray arm with the vertical centerline of the rack and pointing the gun 10° toward the oncoming edges. The spray arm travels about 8-ft. in 52 seconds. To overlap the spray pattern effectively, front and rear fender racks rotate at 24-rpm., hood racks at 32-rpm.

This equipment is designed and installed by Schweitzer Equipment Co., 3764 Ridge Road, Cleveland 9, Ohio.

For more data, circle 6 on colored card.

Irwin, Chemist, Joins P.P.G. Co.

Donald A. Irwin has joined the staff of Pittsburgh Plate Glass Co.'s Research Center at Springdale, Pa., as a chemist in organic research. He is a graduate of Duquesne University.

Functional Finishes!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity . . .

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

TRY US!

• THE VARNISH PRODUCTS COMPANY
5206 Harvard Avenue, Cleveland, Ohio

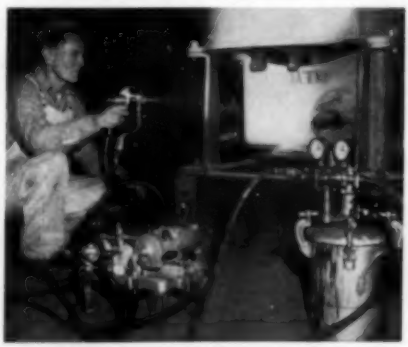
New Hot Spray Vinyl Paint

A new hot-spray-applied vinyl-based protective coating that builds a film thickness in two coats equal to five coats of cold spray vinyl coatings, is announced by The U. S. Stoneware Co., Akron 9, Ohio.

The new coating, Tygon ATD, combines vinyl and other plastic resins to form a high solids content viscous material that reverts to a liquid form on the application of heat, thus avoiding the use of excessive amounts of solvents to achieve spraying consistency.

Tygon ATD is heated to about 160° F. in a standard paint heater. An air pressure of 20-lbs. forces the heated paint to the spray gun where it is atomized by 50-lbs. of air. As the hot paint leaves the spray gun most of the incorporated solvents are evaporated and a thick, high solids content film is deposited on the target. Since but little solvent remains in the film, drying is very fast.

The dry film is extremely dense and impermeable; no pin holes. Material saving is substantial since no thinners are required. Overspray is reduced, and "drifting" of wet spray is virtually eliminated.



Spraying heated Tygon ATD.

Tygon ATD Hot Spray Paint is resistant to the attack of most commercially used acids and alkalies, as well as to alcohols, water and oils. It is, however, attacked by aromatic hydro-carbons, ketones and esters.

For more data, circle 7 on colored card.

For Stirring Contents of Drum

A convenient hand stirrer or agitator for use through the 2-in. side bung openings of 55-gallon drums is announced by The Vol-U-Meter Co., P. O. Box 54, Buffalo 16, N. Y. It is rigidly fabricated in one piece, the blade being twisted to give a propeller-like action to the liquid. This agitator has a 24-in. shaft welded to a

For stirring contents of 55-gallon drums.

14½-in. blade. Shipping weight is 4½-lbs. It is particularly useful in the plants and shops of concerns that purchase pigmented liquids which need stirring from time to time to keep the mixture uniform—and especially before the contents are poured out or used from the drum.

For more data, circle 8 on colored card.

Flock Coating Machine is Enclosed and Automatic

The Electronap machine works on the electrostatic principle and so applies the flock in an upright position. This method insures a high pile, with a velvet-like finish, clean edges, and shows all the printing tones beneath the flock when using clear adhesives.

Some of the features included in

AGATEEN

No. 27
A Crystal-Clear Water White Lacquer

Minimum change of original surface appearance.
Excellent for Watch Dials, Reflectors, Emblems, etc.
No samples.
Small trial orders accepted.

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When You Use
BRADY PRE-CUT MASKS

You get uniform, accurate masking every time with Brady Pre-Cut Masks. Use for spraying, sand blasting, stenciling. Made to meet your requirements. Come on handy Blue Streak Dispenser Cards or folded liner for fastest peel-and-apply time. Hundreds of shapes and sizes in stock. Specials made to order. Free usable samples and literature. Write:

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Manufacturers of Self-Sticking Industrial Products
762 W. Glendale Ave., Milwaukee 12, Wis.
EST. 1914

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Cash Must Accompany Order—
Send for Descriptive Circular

INDUSTRIAL FINISHING
1142 N. Meridian St. Indianapolis 4, Ind.

this flock machine are automatic feed hopper, excess flock return, steam unit for keeping flock in condition for ionization, variable speeds, jog drop and blower system to clean off excess, plus special deliveries. These units can handle folded greeting cards, novelties, sheets and other flat materials.

A product of The Darling-Payne Corp., 82 Beekman St., New York 38.

For more data, circle 9 on colored card.

Blush Cabinet Developed

A new blush cabinet has been designed to enable users and manufacturers of lacquers to determine the blush resistance of their lacquers with the maximum speed and accuracy. Readings of temperature and humidity are made directly. The apparatus is compact, light and portable. Operation technique is simple and positive results easily obtainable.

The original cabinet was developed by Messrs. John L. Eaton and George Davis at the Whitemarsh Laboratories of Sharples Chemicals, Inc., Subsidiary of Pennsylvania Salt Mfg. Co., Chestnut Hill, Philadelphia, Pa.

A motored blower with variable intake provides a slow circulation of humid air or a rapid purging of the air in the box when the Plexiglas inspection doors on top and front of the cabinet are open.

The temperature is thermostatically controlled, heat being provided by four 15-watt bulbs located on the

Reproduces conditions that cause blushing.

NEWCOMB-DETROIT

PIONEERS IN ENGINEERING, MANUFACTURE AND INSTALLATION OF

INDUSTRIAL OVENS
SPRAY BOOTHS
PARTS WASHERS
DUST COLLECTORS
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ESTABLISHED 1912
DETROIT DIVISION – GRAND RAPIDS DIVISION –
NEWCOMB INDUSTRIES LTD., WINDSOR DIVISION

For Bulletins and Quotations, Wire, Write or Call—
NEWCOMB-DETROIT
5753 Russell St.,
Detroit 11, Mich.
TR 3-2100

floor of the chamber. By manipulating the thermostat in conjunction with the dial type thermometer any desired temperature from room temperature to 120° F. can be maintained.

A product of Gardner Laboratory, Inc., 4723 Elm St., Bethesda 14, Md.

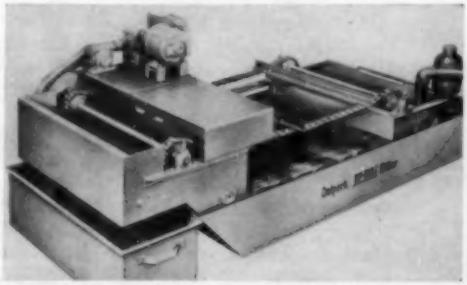
For more data, circle 10 on colored card.

Delpark Up-Flo Filter

A new principle in automatic, self cleaning industrial filtration filters fine as well as coarse particles from liquids through a permanent filter medium. The Delpark Up-Flo Filter utilizes gravity to remove the heavier solids before filtration of the liquid through a horizontal bar-type screen. Only the fine particles held in suspension reach the screen.

Efficiency of the filtration process is never impaired by deposits. Chain driven flights operating on a time lapse sequence pass under the filter and remove deposits from the underside of the screen and the area beneath the screen. These flights carry the particles to a device which cleans the flights. Filtered swarf drops into a tote box for disposal.

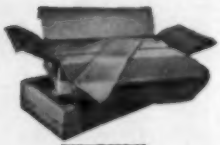
The Delpark Up-Flo Filter main-



Often used to filter recirculating water in water wash spray booths.

For Dust Free Finishes!
BOND TACK CLOTH

IN ROLLS
Cut off any size piece to use as needed.



IN BULK
Cut and folded. Ready to use.

STAYS SOFT AND TACKY
A SPECK-FREE FINISH EVERYTIME

Now Available in Rolls or Cut Bulk—White or Gold.
In Three Different Types of Cloth

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!

The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is **Spontaneous Combustion Proof, Lint-Free and Wax Free.** Gives a sparkling speck-free Finish every time. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS.
Samples Gladly Sent Upon Request.

BOND CHEMICAL PRODUCTS CO.
"The Tacky Wiper Specialists"
2641 N. CLYBOURN AVE. CHICAGO 14, ILLINOIS

Also Individually Packed in Glassine Envelopes—144 to the Carton

A Warranty of Satisfaction in Every Carton

tains high efficiency and full flow. All sizes, flows and capacities available.

For further information, write to Mr. George L. Guymon, Vice-President, Industrial Filtration Co., Dept. U-318, Lebanon, Ind.

For more data, circle 11 on colored card.

New Cesco Goggles for Workers

Announced by Chicago Eye Shield Co., 2300 W. Warren Blvd., Chicago, Ill., is a new No. 100 Chemical Goggle designed for use by workers in dusty air or near splashing liquids.

It is perfectly contoured and moulded from soft, flexible synthetic rubber to provide snug fit, complete protection, and day-long comfort. It is large enough to be worn over most glasses. Baffled ventilator holes on each side permit a circulation of air and prevent fogging.

For more data, circle 12 on colored card.

Temporary Protective Coating; Tight Plastic Film

A new type of temporary protective coating for use on stainless steel, aluminum, copper and decorative laminate surfaces, has been developed by Spraylat Corp., One Park Ave., New York 16, N. Y.

Spraylat SC-1503 is a water-base sprayable compound, which air dries to form a tough, tightly adhering plastic film which can be easily removed with water. The coating will protect the surfaces through fabricating operations, such as rolling, blanking, drawing or laminating, preventing die marks, scratches, or other damage. This compound offers the merit of being a low cost method of protection, without any fire hazard or toxic condition in application or removal.

For more data, circle 13 on colored card.

Fast Machine Applies Wipe-on Paint to Sunken Dial Letters

A new machine, developed by Finish Engineering Co., Inc., 1115 Cherry St., Erie, Penna., applies paint to sunken letters, numbers, lines and decorations, and then automatically wipes the surrounding surface clean.

The operator loads, presses pedal, and the machine does a perfect job. Wiping is done by a continuous roll towel, which may be laundered and re-used. The part is either rotated, oscillated or reciprocated as the towel wipes it. Every part comes out clean. It's 11 times faster and much better than hand work.

For more data, circle 14 on colored card.

Surface Finishing Machine

Capable of complete and simultaneous coverage over both inside and outside of spoon and fork bowls, the new No. 204 Clair Surface Finishing Machine has revolutionized finishing practices throughout the tableware industry. The progressive evolution of the current spoon and fork polisher reflects the cooperation and assistance of many makers of flatware.

From the legs up, every structural member has been re-engineered for greater strength. Originally limited to 5-h.p., this new machine is stressed for as high as 15-h.p. spindle motors. Based upon years of service experi-

For buffing and polishing silverware, etc.

YOU can rely on

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for prompt shipment in any quantity of

• FINISHES •

Lacquers • Enamels
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Texture Enamels
Specialized Production Finishes
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FOR A MIRROR-LIKE FINISH YOU CAN'T BEAT DETROIT "TAC" RAGS

DETROIT "TAC" RAGS are an absolute necessity for cleaning any metal, wood or plastic surface before painting. Removes all dust, lint and sanding particles.
Order today through your supplier.
STANDARD OF THE FINISHING INDUSTRY SINCE 1934
DETRO MFG. & SALES CO., INC., CULVER CITY, CALIFORNIA

REPRINTS AVAILABLE

"Industrial Paint Samples 'Big Deal'," price 10 cents per copy.

"Force Drying Wood Finishes", price 10 cents per copy.

"Cleaning and Conditioning Metal Surfaces for Coatings", price 20 cents per copy.

"A Half Decade of Finishing Progress," price 10 cents per copy.

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"Flow Coating as a Means of Paint Application," price 10 cents per copy.

"Stirring and Straining," price 10 cents per copy.

"A Method Engineer Analyzes Paint Selling," price 10 cents per copy.

"Preparing and Painting Metal Specialties", price 10 cents per copy.

"Flock (What it is, its appearance, its uses both for utility and decoration)", price 10 cents per copy.

"Filler, The Theory and Technique of Application", price 10 cents per copy.

"Finishing System for Magnesium", price 10 cents per copy.

"Rapid Electrostatic Finishing", price 10 cents per copy.

"Automatic Viscosity Control for Mass Production Finishing", price, 10 cents per copy.

INDUSTRIAL FINISHING Magazine

1142 N. Meridian, Indianapolis 4, Ind.

ence, all long range vulnerable wear points now incorporate replaceable hardened wear inserts; as today's machines take full advantage of vastly improved hydraulic, air and electrical components. Versatility has been increased by virtue of additional and more flexible adjustments on Model No. 204.

For more data, circle 15 on colored card.

New Hot Spray Vinyl Combats Corrosion

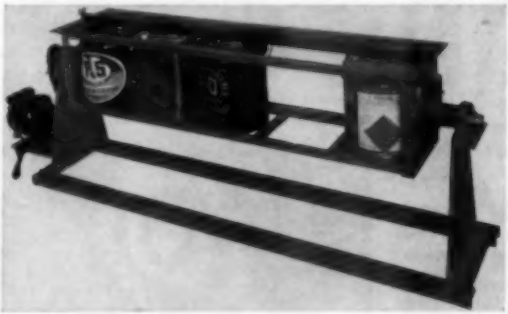
A new hot spray vinyl specifically engineered for economical and effective corrosion control, particularly important to industries with chemically corrosive environments, is announced by Prufcoat Laboratories, Inc., 50 E. 42nd St., New York 17.

The new hot spray vinyl provides 4-mils coating thickness in a single spray pass. One prime and one hot spray coat give the 5 to 6-mil total thickness needed in most corrosion protection work. Vinyl thicknesses in the 10 to 15-mil range without runs or sags are possible in an uninter-

Coating large steel tanks by hot spray.

FIVE-UNIT CHANGE PAIL TUMBLER

This easy to load and unload tumbler will mix the contents of 5-gallon drums or rectangular cans, by end over end tumbling, at approximate speed of 30-RPM. Other speeds to suit customers' needs.



The mixing of materials in suppliers' drums offers these advantages:

- A uniform mix ready when needed.
- Fire hazard of open containers is eliminated.
- No solvent loss.
- No maintenance expense and a low operating cost.

Inquiries should give:

Voltage, phase and cycle of current in use.

Gross weight of loaded container.

State whether round or square containers, or both.

THE VOL-U-METER CO., P. O. Box 54, Buffalo 16, N. Y.

rupted multiple pass spray application.

The chemical resistance of vinyls has long been known to reduce maintenance recoating costs. Ease of handling and the high build obtainable with the hot spray vinyl mean greatly increased man-hour efficiency, because fewer coats and faster applications save time.

For more data, circle 16 on colored card.

Fire Resistant Curtain

The dangers of fire destroying industrial curtains and partitions and possibly spreading to other parts of a building are removed by the use of Duratex Utility Curtains. Duratex, manufactured by Duracote Corp., Ravenna, Ohio, consists of a fabric base woven of Fiberglas or Nylon yarn coated with synthetic plastic resins —that will not harden, crack or peel —for complete and permanent fire resistance.

Its other qualities—light weight combined with high breaking and tearing strength, smooth surfaces which make it snag and dirt resistant, its non-absorption of, and resistance to, water, oil, grease, alkalis and most acids and its ability to withstand temperature extremes—these recommend Duratex Utility Fabrics for such uses as paint department curtains, heat barriers, pickling operations and for temporary and permanent room-dividing partitions.

For more data, circle 17 on colored card.

R. Began Represents Body Bros.

Robert Began of Bedford, Ohio, has been appointed sales representative of Body Bros., Inc., in the Cleveland-Akron, Ohio areas. For the past 4½ years he has been plant and laboratory superintendent at Body Bros., Inc., manufacturer of BoGard industrial finishes.

Portable Power Disc Sander

A new 7-in. standard sander is offered by The Black & Decker Mfg. Co., Towson, Md. This tool has 20% more power than its predecessor, yet

Superior balance, easy grip; runs cool.

its weight has been reduced 20%. Its motor has been redesigned to meet the requirements of such a unit and built for general-purpose production and maintenance work.

A new type centrifugal fan gives greater air velociy through the commutator section. The motor runs "cool" and is kept almost entirely free of carbon and abrasive dusts.

For more data, circle 18 on colored card.

New Corrosion Inhibitors

Princeton Paint Laboratories has assigned to John B. Moore Corp., P. O. Box 3, Nutley 10, N. J., marketing and manufacturing rights to two new types of corrosion inhibitors.

Princeton Paint Labs., originator of "AP-10" aircraft primer, recently developed two new types of corrosion inhibitors, effective on both ferrous and non-ferrous metals, designated as "CI-103" and "CI-104."

"CI-103" is a film-former which dries tack-free in three to four minutes and may be removed easily by an aromatic petroleum solvent wash.

"CI-104" is neither a coating nor a film-former, but leaves a durable deposit of mono-molecular dimensions as a moisture barrier on surfaces treated.

For more data, circle 19 on colored card.

Die-Cut Pressure Masks

Pressure-sensitive tapes have been die-cut to accurately mask out unusual shapes and to protect holes and apertures during manufacturing operations. Precision cut to the custom made specifications of each masking job, these handy masks assure sharpline masking during painting, plating, buffing, polishing, stenciling, and sand-blasting. Die-cut masks are supplied in rolls and are mounted on a "quick release" paper backing for fast application.

Applying pre-cut masks before follow-up . . .

These masks are also available as die-cut circles or discs known as "Flash-off" masks; overlapping each other slightly on the roll, several at a time may be removed. Stock diameters range from ¼ to 1½-in.

A product of Printed Cellophane Tape Co., 521 N. La Brea Ave., Los Angeles 36, Calif.

For more data, circle 20 on colored card.

Why hot spray? You use less thinner, have less overspray and get a heavier solids film in one coat.

Turbo-Blast Parts Cleaning

Storm-Vulcan, Inc., 2225 Burbank St., Dallas, Texas, announces a new addition to its complete line of turbo-blast parts cleaning machines for automotive and industrial application. This machine is Model #40 which is designed for utilization of a small working area—unobstructed working area on the sides and front—with volume cleaning capacity.

The hot cleaning solution is agitated.

The Model No. 40 Turbo-Blast Parts Cleaner has a tank size of 5x3x2-ft. (Solution fills to 18-in. deep); heating of the solution is by gas or steam; solution capacity is 185 gallons; impellers driven by two 1½-h.p. single phase motors. It is claimed that the super agitation created by two powerful impellers is equal to vigorous hand-scrubbing.

For more data, circle 21 on colored card.

There's more to a paint baking oven than heat. Proper movement of air must take away solvent fumes and other air contaminates. Heat-up to bake can be gradual; not too sudden.

Odorless Solvent Here

A new, odorless solvent has been developed by The Penetone Co. Known as TPC Solvent, it is intended as an odorless replacement for such solvents as kerosene and mineral spirits.

TPC solvent is safe to use. It has a high flashpoint of 130° F., as compared with the 105° F. of mineral spirits.

The most frequent uses for TPC solvent are as a tank degreaser and for manual cleaning on work bench or production lines. In these applications the solvent is used at room temperature. It may be used safely on all metals and insulation equipment; it leaves no residue.

Full information and a free sample of TPC Solvent are available from The Penetone Co., Box IF-455, Tenafly, N. J.

For more data, circle 22 on colored card.

W. F. Rhoades New Manager at DeSoto Paint & Varnish Co.

Walter F. Rhoades, formerly technical director of Pacific Paint & Varnish Co., Berkeley, Calif., has been transferred and made vice-president and general manager of DeSoto Paint & Varnish Co. of Garland, Texas. Both companies are Sears, Roebuck & Co. subsidiaries.

Mr. Rhoades replaces M. H. "Max" Warren, who has retired. Mr. Warren was primarily responsible for the planning and construction of DeSoto's new paint and resin plants at Garland.

A. M. Holcomb is industrial sales manager.

B. Franklin Paint & Varnish Co. Appoints W. M. Anderson

Wallace M. Anderson has been appointed to the technical staff of Benjamin Franklin Paint & Varnish Co. He is in charge of the Appliances Division of the Industrial Finishing Laboratory.

Mr. Anderson has been active in the industrial finishing field for 15 years. He has held top technical positions in the industry and his experience will enable him to contribute to Ben Franklin's rapidly-expanding industrial program.

Baking the Finish on Thick and Thin Parts

A PROBLEM frequently encountered in paint baking operations is that of supplying adequate heat to penetrate thick, heavy metal sections, on a par with the time required for thinner and lighter parts. A flexible heating system is required to provide sufficient heat intensity while giving accurate, responsive control as required by changing nature of the work. Since paint colors vary widely in their heat absorbing properties, the heat source should be capable of baking both light and dark colors at nearly equal speed.

A good example of such a system is found at a mixing machine manufacturer's plant where the work varies from light sheet metal parts to heavy brass castings, and where paint colors range from white to dark brown. A steam heated oven was previously used, but it required six hours to bake paint adequately on all parts in assortment by the batch method.

The problem was solved by substituting a far-infrared electric tunnel containing six Chromalox electric radiant panels with an installed capacity of 64.8 kilowatts. The tunnel is divided into two heat zones, each containing three panels. Each zone is regulated by a separate input controller and magnetic contactor.

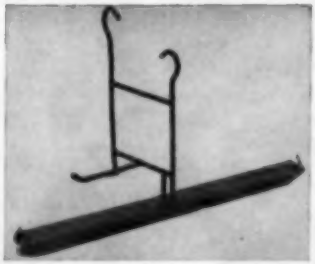
With this system all parts are now baked in a minimum of 1½ hours, saving 75% of the previous time. In addition, all paint colors are handled at about the

3 LBS.
11 OZS.
OF
PAINT
BUILD-UP

STRIPPED IN 2 MINUTES!

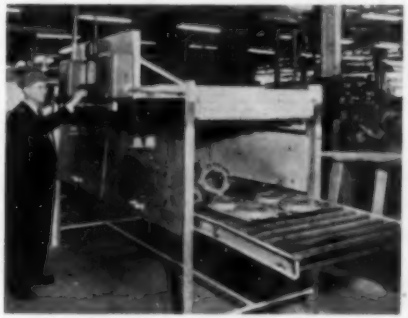
By
KOLENE
PROCESS

Descriptive bulletin and additional information available upon request.



KOLENE CORPORATION
12890 WESTWOOD AVENUE
DETROIT 23, MICHIGAN
Originators and Suppliers of Kolene Chemical Processes and Equipment

same rate, and any temperature adjustments that are necessary can easily be made with the 2-zone control system. The conveyor height can also be adjusted to bring the work closer to the heaters so that paint baking time can be reduced to less than 1½ hours where specifications permit.



Heat panels are above; the conveyor below is adjustable for height.

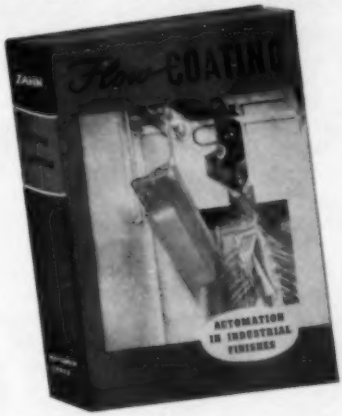
The heat panels, which are completely packaged units with built-in insulation and bus bars, are mounted on simple angle iron framing to form the top of the tunnel. For additional insulation, a corrugated aluminum reflector is located beneath the roller conveyor, and asbestos padding is attached to steel sheeting to form the side walls. A 6-in. space is left open between the two panel zones to exhaust paint volatiles.—*Edwin L. Wiegand Co.*

A Finishing Consultant Reports on a "Case"

I RECEIVED a telephone call from Mr. X. of Y. Z. Mfg. Co. Mr. X. was having difficulties in getting started with production. He was endeavoring to paint small hardwood toy parts by the tumbling process.

I visited his plant and found that

FLOW COATING BOOK



Mr. Zahn, the author of "Flow Coating", says that any product which can be dipped or sprayed can be finished by the flow-coat method. His new book contains 296 pages 5¼x7¾-in.; 13 chapters.

The great range in new kinds of solvents now available, plus phenolic-base resin paints and vinyl type paints which have been so successful in the flow-coating method of application, presents endless possibilities for profit. The industrial user can now afford to pay a little more for better materials and profit by a higher quality product.

"Flow Coating" explains the various industrial painting methods such as: dipping, spraying, electrostatic, steam, roller coating, centrifugal, hand spraying, automatic dip and many others. Direct comparisons between flow coating and these methods are dealt with in detail.

Mr. E. A. Zahn has spent 25 years in research on industrial paints and application methods. He is the inventor of the Zahn Viscosity Cup, and has acted as consultant to many manufacturing concerns. In 1938 he received the Charles A. Coffin award for contributions made to the electrical industry. Mr. Zahn has been associated with General Electric for 25 years and is at present Organic Finishing Engineer at General Electric's Appliance Park, Louisville, Ky.

Price $6.50—Money Back Guarantee

INDUSTRIAL FINISHING

1142 N. Meridian St. Indianapolis 4, Ind.

he had purchased, from a local paint manufacturer, several 5-gallon cans of tumbling enamel made up in various colors. The paint manufacturer's representative had spent considerable time at the plant, but was unable to produce a satisfactory finish. In fact, they could not produce a first coat finish that could be used for a second coat operation. Several hundred parts were stuck together; I could hardly break them apart.

I contacted another source of supply, and had Mr. X. place an order for a different type of material, with the necessary amount of thinner. I also recommended a few minor changes in the tumbling operation to provide a smooth wood surface before painting, and some changes in the paint tumbling equipment.

Mr. X.'s troubles included, 1) getting the proper tumbling enamel and thinner; 2) knowing the proper mix to use, 3) finding out how it should be applied to the parts in the tumbler; and 4) determining what rotation speed to use. I had the tumbler set at an angle to produce a sort of "weaving" motion in addition to the rotation; and I set the speed at 28 revolutions per minute. For the first coat the new material was reduced in the proportion of one quart of enamel to ½-pint of thinner.

The tumbling barrel was loaded approximately five-eighths full and rotated for ten minutes. After an over-night air-dry on trays, we applied the second coat, using 1¼ pints of enamel with ¼-pint of thinner, using the same number of parts, and rotating the barrel for six minutes. The quality was very good and, with this particular color, only two coats were necessary. However, with some colors, such as yellow, we may possibly have to include a third coat.

This is rather a small plant. . . . Mr. X. has an interesting product which looks like a real seller, and his business has a fine chance of developing into a sizable production. Here is a good example of a former salesman, which Mr. X. was before retiring and starting his own business, knowing that a quality finish with eye and sales appeal on a product which sells for a fairly low price, is essential for sales volume.

I have promised to spend some more time with Mr. X. to get his production running smoothly with a quality finish, and am eager to see him make a profit. . . .—*C.C.*

Metalized Film Bonded To Fabrics; Embossed

(Continued from page 97)

conditions in contact with the aluminum vapor (or other metallic vapors). These vapors condense on the film in a thin layer, creating a bright, mirror-like effect. The metalized surface of the film is then bonded to vinyls, fabrics, or other materials. The outer surface of the film, which is crystal clear, protects the inner metalized surface from scratches, tarnishing, etc.

A rainbow variety of metallic colors can be created by first coating the film with a transparent, colored lacquer before it is metalized. The result is a colored mirror effect. For example, if a yellow-orange color is used, a gold effect is obtained.

Auto-makers also are interested in a material created by bonding the metalized film ("Mylar") to leather. Even after the laminating process, the original grain of the leather is retained, plus a subtle sheen which lasts indefinitely. This type leather-laminate is now being used for handbags, shoes, belts, etc. It is unaffected by mildew, and may be spot cleaned with cleaning fluids without affecting color or sheen.—*Du Pont's Product Information Service.*

For Your Convenience

Use INDUSTRIAL FINISHING magazine's "Reader Service" return cards to obtain further information on products described and illustrated in the "Materials; Supplies; Equipment" section which precedes this page; also, to receive manufacturers' literature — booklets, catalogs, circulars — as mentioned on the following pages.

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Industrial Finishing Magazine

1142 N. Meridian Street

Indianapolis 4, Ind.

Manufacturers' Literature

Blast Cleaning. A new bulletin on the various applications of abrasive blast cleaning to problems encountered in industries concerned with the processing of steel mill products has just been published by American Wheelabrator & Equipment Corp., 1144 S. Byrkit St., Mishawaka, Ind. The bulletin is entitled "Eight Steps to Lower Cleaning Costs."

For more data, circle 23 on colored card.

Metalwash Catalog. The full Metalwash line is presented in this new catalog. Sections cover machinery for washing, pickling, drying, phosphatizing, degreasing, and accessories. 66 different types of machines are illustrated. Specifications are included. Metalwash Machinery Corp., 910 North Ave., Elizabeth 4, N. J.

For more data, circle 24 on colored card.

Tack Rags are used to wipe (pick up and hold) the dust and lint (even what you don't see) from surfaces of products that are to receive a perfect mirror-like finishing job. Detro Mfg. & Sales Co., Inc., Culver City, Calif.

For more data, circle 25 on colored card.

Speck-Free Finish. Tack cloths available in rolls or cut to size, in white or gold color, are a specialty of Bond Chemical Products Co., 2641 N. Clybourn Ave., Chicago 14, Ill. Information about their merits will be supplied by manufacturer.

For more data, circle 26 on colored card.

Furniture Finishes. All materials, plus technical service, are offered by Snyder Bros. Co., P. O. Box 548, Toccoa, Georgia.

For more data, circle 27 on colored card.

Protect Eyes from Paint Spray. Goggles . . . . fog-proof, gas tight, and made especially for spray painters, are described and illustrated in a folder distributed by H. S. Cover, South Bend, Ind.

For more data, circle 28 on colored card.

Pre-Cut Masks (Self Sticking) of any shape or size for spray painting, etc., are explained and illustrated in literature offered by W. H. Brady Co., 762 W. Glendale Ave., Milwaukee 12, Wis.

For more data, circle 29 on colored card.

What Cost Cleaning. Which is really economical and which may be too high, depending upon volume, specifications, facilities, etc. Literature on metal cleaning equipment will be sent by Cincinnati Cleaning & Finishing Machinery Co., 2006 Hageman St., Sharonville, Ohio.

For more data, circle 30 on colored card.

S-W Standard Finishes are available in such variety, for so many different requirements, that they meet most "special" needs. More complete information on what is offered can be obtained from Sherwin-Williams Co., General Industrial Divn., 101 Prospect Ave., N. W., Cleveland 1, Ohio.

For more data, circle 31 on colored card.

Industrial FINISHING

March, 1955, Issue

READER SERVICE DEPARTMENT

Without obligation, please see that we receive the manufacturers' literature identified by the number or numbers, circled on this card:

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45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	96	97	98	99	100	101	102	103							

Signed.....*Title*.....

My company's name.....

Street Address.....

City.....*Zone*.....*State*.....

Shell Solvents. Five advantages of Shell Ketones, used as solvents in finishing materials, are explained in literature, offered by Shell Chemical Corp., 380 Madison Ave., New York 17, N. Y.

For more data, circle 32 on colored card.

Heavy Drum Handling is easy and safe with the simple equipment described and illustrated in literature offered by Morse Mfg. Co., Inc., 763 W. Manlius St., East Syracuse, N. Y.

For more data, circle 33 on colored card.

Radiant Heat Baking. Comparisons between gas-fired and electric radiant heat for baking the finish on metal products; length of oven, cost, etc. Data explained by Burdett Mfg. Co., 3425 W. Madison St., Chicago 24, Ill.

For more data, circle 34 on colored card.

Appliance Finishes plus technical servicemen; high product quality, lowered costs, fast production, fewer rejects. Information offered by The Glidden Co., Industrial Finishes Divn., 11005 Madison Ave., Cleveland 2, Ohio.

For more data, circle 35 on colored card.

Power Sanding, Rubbing. Portable machines driven by compressed air, straight line or orbital; rapid, safe operation. Information offered by National Air Sander, Inc., 2820 Auburn St., Rockford, Ill.

For more data, circle 36 on colored card.

Universal Wash Primer for any metal, wood and most plastics; "bites" into surface to give good adhesion under air-dry or baked finish. More details offered by American Lacquer Solvents Co., Phoenixville, Penna.

For more data, circle 37 on colored card.

"Push Button" Touching Up of slightly damaged finishes (any kind) quickly and effectively on all products. A free "Push Button" folder about the constant pressure spray from a small "charged" can is offered by Sprayon Products, Inc., 2075 E. 65th St., Cleveland 3, Ohio.

For more data, circle 38 on colored card.

White Baking Enamels for appliances. Resistant to salt spray, alkalies, detergents, greases; color and gloss retention; hard, flexible, durable. Data offered by The O'Brien Corp., 101 N. Johnson St., South Bend 21, Ind.

For more data, circle 39 on colored card.

Blond Cabinet Lacquer. 27% solids, cold spray; alcohol resistant; rubs, polishes to desired sheen; resistant to cold check. Specify sheen desired when writing for more detailed information to Barrett Varnish Co., 1532 S. 50th Court, Cicero 50, Ill.

For more data, circle 40 on colored card.

Protective Coatings Bulletin No. 7-2 include neoprene heavy-duty, neoprene extra heavy duty, styrene, chlorinated rubber and epoxy resin-based coatings. The Atlass Mineral Products Co., Houston 20, Texas; and Mertztown, Penna.

For more data, circle 41 on colored card.

Industrial Tape Catalog. Actual industrial tape samples, mounted in an informative catalog, are offered by Polyken Products, Dept. of the Kendall Co., 222 W. Adams St., Chicago 6, Ill.

For more data, circle 42 on colored card.

Sandblast Machines. A 4-page Bulletin No. 1555, illustrates and describes Leiman sandblast machines, including standard . . . . for laboratory and small shop use. Complete details of surface preparation, stenciling, mat finishing, etc., can be obtained from Leiman Bros., Inc., 102 Christie St., Newark 5, N. J.

For more data, circle 43 on colored card.

Powerflow Paint Drum Pumps. The new 452 Catalog illustrates and describes the latest Graco Powerflo pumps, circulating systems and equipment designed to spray or extrude liquids, semi-liquids and semi-solids used in production . . . . The Graco catalog is full of new ideas and new equipment to help reduce costs and increase production in industry. Gray Co., Inc., 1023 Sibley St., Minneapolis 13, Minn.

For more data, circle 44 on colored card.

"Totrust" in Spray Bomb. One coat penetrates and stops rust and dries in less than five minutes to a durable, ready-for-use coating that protects—and keeps right on protecting. Use as one-coat primer finish or as rust preventive undercoat. Wilbur & Williams Co., 130 Lincoln St., Boston 35 (Brighton), Mass.

For more data, circle 45 on colored card.

Cleaning, Painting and Drying; also processing, in a complete conveyorized setup for metal parts and products . . . . details, illustrations and facts are included in a new attractive booklet of 32 pages, 8½x11-in., printed in three colors, offered by Alvey-Ferguson Co., 727 Disney St., Cincinnati 9, Ohio.

For more data, circle 46 on colored card.

Metalwash Finishing Engineer, Vol. III, No. 1, is an 8-page (8½x11-in.) illustrated booklet that reveals information about metal cleaning and phosphatizing machines and processes. One article tells about the polishing material call "Tripoli". Copies of this booklet are published quarterly by Metalwash Machinery Corp., 925 North Ave., Elizabeth 4, N. J.

For more data, circle 47 on colored card.

Ovens, Conveyorized and otherwise, are described and illustrated (increase production 92%; save 82% in paint) in a catalog being distributed by Kirk & Blum Mfg. Co., 3131 Forrer St., Cincinnati 9, Ohio.

For more data, circle 48 on colored card.

Best Way to Strip. "How to Strip Paint" (lacquers, baked enamels, synthetics, etc.) is revealed in a free book by Oakite Products, Inc., 32F Rector St., New York 6, New York.

For more data, circle 49 on colored card.

Consultation on Finishing Problems is offered by Body Bros., Inc., Bedford, Ohio.

For more data, circle 50 on colored card.

Power Buffing, Polishing. Information about power-feed surface finishing machines for fine metal work, silver table ware, etc., is offered by Clair Mfg. Co., Inc., Olean, N. Y.

For more data, circle 51 on colored card.

Graining Machines, power feed, with vertical or horizontal graining rolls, are available. Information about them can be obtained from Roto Finishing Systems, 1105 E. Glencoe Ave., Compton, Calif.

For more data, circle 52 on colored card.

Finishing Air Conditioners. A technical bulletin (No. 11), on this subject covers appearance, protection, metal preparation, priming—in fact, the complete finishing system—in a practical and thorough way. It's free from E. I. DuPont deNemours & Co., Inc., Finishes Divn., Dept. IF-5-3, Wilmington 98, Dela.

For more data, circle 53 on colored card.

Blonds. Finishes for furniture in blond, stained and colors, wood or metal, are among the specialties of Rockford Varnish Co., Rockford, Ill. Information on these protective and decorative finishes will be sent on request.

For more data, circle 54 on colored card.

Stains, Glazes, Fillers are included among the several specialty finishes for wood, plastic and metal products, offered by James B. Day & Co., 1872 Clybourn Ave., Chicago 14, Ill.

For more data, circle 55 on colored card.

Strippers. Non-toxic, no odor, no fumes, no fire hazard; rinse off with water spray. Northwest Chemical Co., 9310 Roselawn, Detroit 4, Mich.

For more data, circle 56 on colored card.

Baking and Drying Ovens engineered and built by specialists to meet specific requirements. Bulletin 4 explains details. Young Bros. Co., 1835 Columbus Road, Cleveland 13, Ohio.

For more data, circle 57 on colored card.

Plastisols for spraying, roller coating or dipping; thin or thick protective coatings, chiefly for metals. Bulletin VP-1 explains how these coatings meet unusual requirements. United Chromium, Inc., 100 E. 42nd St., New York 17, N. Y. or in Detroit, Chicago and Los Angeles.

For more data, circle 58 on colored card.

Paint for Hot Metal. A new 6-page, illustrated brochure on Sili-Kool, a new heat, rust and corrosion-resistant silicone paint, for all red-hot surfaces, that withstands 1600° F. and exposure to extreme weather conditions, may be had by writing C. H. Dragert Co., Inc., 2518 Chalk Hill Road, P. O. Box 5092-L, Dallas, Texas.

For more data, circle 59 on colored card.

How to Use 3M Tapes in hundreds of ways in which pressure-sensitive tapes are used. A new 56-page (8½x11-in.) book is offered free by Minnesota Mining & Mfg. Co., Dept. P-537, St. Paul 6, Minn. It is a survey of a few representative applications showing where, how and why these tapes are used by the industry.

For more data, circle 60 on colored card.

Hot Spray System offers superior flow, even spreading, high film build, fast drying, tack free surface . . . . more details from The DeVilbiss Co., Toledo, Ohio and Santa Clara, Calif.

For more data, circle 61 on colored card.

Peel-off Coating stands 375° F. A strippable masking material withstands baking cycles. Sample and details offered by Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

For more data, circle 62 on colored card.

3-Zone Conveyorized Oven is only one of several types offered for various applications. Information in detail about the several features of these ovens supplied by Industrial Ovens, Inc., 13821 Triskett Road, Cleveland 11, Ohio.

For more data, circle 63 on colored card.

Paint Adhesion to Metal is improved by proper cleaning and preparation (such as phosphatizing). A new bulletin about Lyfanite "Z", Galvaprep, Metalprep, Phosteem and Prep-N-Cote is offered by Neilson Chemical Co., 6562 Benson St., Detroit 7, Mich.

For more data, circle 64 on colored card.

Solvents; Chemicals. How to save money buying them (drum or tank cars) for various uses. The Solvents & Chemicals Group, 2540 W. Flournoy St., Chicago 12, Illinois.

For more data, circle 65 on colored card.

Masking Plugs of Neoprene, for small holes and threaded studs, to protect same during power cleaning or spray painting, are among the masking devices made by Duggan Masking Devices, 2030 W. Fort St., Detroit 16, Mich.

For more data, circle 66 on colored card.

"How Thousands Cut Costs" is a shortened title of a new booklet that reveals the merits and performance of Fostoria Radiant ovens for drying and baking in industry. The Fostoria Pressed Steel Corp., Dept. 321, Fostoria, Ohio.

For more data, circle 67 on colored card.

Batch Ovens, Gas or Electric, are included in the extensive line (ovens, spray booths, ventilation, controls) of the Young & Bertke Co., 2250 Buck St., Cincinnati 14, Ohio, all designed, installed and serviced to meet various finishing problems.

For more data, circle 68 on colored card.

Dustless Blast Cleaning. A 4-page, 2-color technical bulletin just published by Baldwin-Hill Co., 500 Breunig Ave., Trenton 2, N. J., describes the characteristics and performance of the company's new non-metallic, dustless Mono-Kleen mineral shot for blast cleaning.

For more data, circle 69 on colored card.

Hammered Effect Finish. One-coat bake or air-dry, in silver and colors. From Duralac Chemical Corp., 84 Lister Ave., Newark 5, N. J.

For more data, circle 70 on colored card.

Five-Unit Mixer. A new motor-driven tumbler takes as many as five 5-gallon containers and rotates them to mix the contents. The Vol-U-Meter Co., P. O. Box 54, Buffalo 16, N. Y.

For more data, circle 71 on colored card.

Quality Finishes for fine wood and metal products. Information supplied by New York Woodfinishers Supply Co., Inc., 109 Imlay St., Brooklyn, N. Y.

For more data, circle 72 on colored card.

Electrostatic Painting. Details of the merits—fast production, material savings, cleanliness, adaptability and simplicity of the No. 2 electrostatic system of spray painting—are revealed in literature offered by Ransburg Electro-Coating Corp., Dept. I, Indianapolis 7, Ind.

For more data, circle 73 on colored card.

Vinoc Finishing System for machine tools, etc. Faster flow, reduced handling; resistant to high-speed coolants and abrasion; improved filler; cold or hot lacquer application. Lowe Brothers Co., Industrial Divn., Dayton 2, Ohio.

For more data, circle 74 on colored card.

Flow Coat Finishes and how to use them effectively and economically . . . . information offered by Cincinnati Varnish Co., Cincinnati 12, Ohio.

For more data, circle 75 on colored card.

Clear Metal Finishes as well as smooth and texture enamels, lacquers, thinners and special production finishes are offered by Randolph Products Co., Carlstadt, N.J.

For more data, circle 76 on colored card.

600 Different Colors for one customer . . . . large accounts and small ones are included among the company's long-time buyers of industrial finishes. Samples and data are available. John L. Armitage & Co., 245 Thomas St., Newark 5, N. J.

For more data, circle 77 on colored card.

Sanding Information Free. Which grades and kinds of abrasive paper are best for preparing surfaces (cleaning and smoothing), removing old paint, sanding between coats, finish sanding, wet sanding, etc. . . . . all revealed in data offered by The Carborundum Co., Dept. I.F. 82-55, Niagara Falls, N. Y.

For more data, circle 78 on colored card.

Color Matching. Accurate duplication of test panels for application by manual or automatic spraying. An illustrated folder explains it clearly. Eclipse Air Brush Co., 400 Park Ave., Newark 7, N.J.

For more data, circle 79 on colored card.

Permalucent Polychrome metallic finish (radiant silver gray) that resists grease, heat and cleaning compounds, is used on Hotpoint's "Glamour Line" of all-electric cooking equipment. How Alcoa pigments are used in this and other new finishes can be learned by writing Aluminum Co. of America, 1732-C Alcoa Bldg., Pittsburgh 19, Pa.

For more data, circle 80 on colored card.

Uniform Oven Heat is one feature that helps to make possible the baking of perfect white, cream and ivory finishes, according to The Lanly Co., 760 Prospect Ave., Cleveland 15, Ohio, which has a new catalog to send you.

For more data, circle 81 on colored card.

Paint Arrestors, placed in back of spray booth, let air through but catch and hold overspray. Further information offered by Research Products Corp., 1015 E. Washington Ave., Madison 10, Wisc.

For more data, circle 82 on colored card.

Overhead Conveyor; No Chain or Cable. Bulletin G-100 reveals the merits of a chainless conveyor which, its manufacturer claims, has cut paint spraying labor costs as much as 50% in some plants. The Landahl Conveyor Co., 537 Dennison Ave., Columbus 8, Ohio.

For more data, circle 83 on colored card.

Crystal Clear Lacquer for watch dials, emblems, reflectors, etc., is announced by Agate Lacquer Mfg. Co., Inc., 11-13 43rd Road, Long Island City, N. Y.

For more data, circle 84 on colored card.

Thinners Formulated to meet specific requirements often include accurately measured proportions of several different solvents. Why so much depends upon using a carefully blended thinner can be learned by writing Barker Chemical Co., 700 E. 138th St., Chicago 27, Ill.

For more data, circle 85 on colored card.

Water Dip Lacquer for covering bright plated metals to protect them from fingerprints, mild scratches, smudges, tarnishes . . . . Out of last hot water rinse, in and out of water dip lacquer; all traces of water removed, leaving a durable transparent coating on plated products. More details available from G. J. Nikolas & Co., 2850 Washington Blvd., Bellwood, Ill.

For more data, circle 86 on colored card.

Furniture Conveyors increase production efficiency, decrease rejects, reduce costs. Designed by a furniture manufacturer for better and faster furniture finishing. Details from DeBurgh Conveyors, Inc., 10 S. 11th St., Evansville, Ind.

For more data, circle 87 on colored card.

Airless Hot Spray Painting—in or out of spray booths. "No overspray" allows the work to be done anywhere. How, where and why it is quickly adaptable to such a variety of painting jobs is revealed in literature you can get from Bede Products Corp., Jackson St., Amherst, Ohio.

For more data, circle 88 on colored card.

Drum Mixer; Stirrer; Air Motor. A new Type L Mixer (air motored) for use in drums and smaller containers, is illustrated and described in Bulletin 531, offered by Conn & Co., 11 South Marion St., Warren, Penna.

For more data, circle 89 on colored card.

Strips Build-up off Hooks. A new bulletin that tells you about a system of easily and quickly stripping off built-up paint, enamel or lacquer from iron or steel hooks and racks, is offered by Kolene Corp., 12890 Westwood Ave., Detroit 23, Mich.

For more data, circle 90 on colored card.

Labor Saver; Conveyorization! How savings of 30% to 50% have been effected in more than 125 furniture and cabinet factories through modern conveyorization, is revealed in literature offered by George Koch Sons, Inc., Evansville, Ind.

For more data, circle 91 on colored card.

Burn Resistant Clear Finish for hardwood furniture and cabinets also resistant to alcohol, lacquer thinner, water and bumps; non-yellowing. For additional facts, write or telephone V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill.

For more data, circle 92 on colored card.

Clear Rubbed-Effect Finish for wood cabinets and furniture; tough, waterproof and liquor proof. Samples or demonstration offered by Perfection Paint & Color Co., Indianapolis 2, Ind.

For more data, circle 93 on colored card.

Stripper, Fast but Safe for stripping off paint, baked enamel; used cold; dip or brush type. For further information and a sample, write Allied Finishing Specialties Co., 2641 W. Grand Ave., Chicago 12.

For more data, circle 94 on colored card.

Thinners and Finishes, laboratory controlled, are specialties offered by I-Sis Chemicals, Inc., Springdale, Conn.

For more data, circle 95 on colored card.

Lacquers for Navy Jets are used both by manufacturers and airlines. Information about their fast drying and resistance to corrosioon can be obtained from the Cellulose Products Department of Hercules Powder Co., 928 Market St., Wilmington 99, Dela.

For more data, circle 96 on colored card.

Furniture Finishing System. All of the materials—stains, fillers, sealers, primers, top coats—plus field service assistance, are offered by The Gilbert Spruance Co., Richmond & Tioga Sts., Philadelphia 34, Penna.

For more data, circle 97 on colored card.

Zatex Multicolor. A fast bake decorative but durable enamel for metal. Information obtainable from Finishes Division of Atlas Powder Co., Wilmington 99, Dela.

For more data, circle 98 on colored card.

Electrostatic Spray Painting. What, why and how it saves so much in the finishing of metal products is revealed in information offered by Ashdee Electrostatic Products, Inc., 18029 Dixie Highway, Homewood, Ill.

For more data, circle 99 on colored card.

Acrylic, Alkyd, Vinyloid coatings, developed to meet various specialized, unusual and difficult requirements, are offered by The Varnish Products Co., 5206 Harvard Ave., Cleveland, Ohio.

For more data, circle 100 on colored card.

Ovens, Spray Booths, Washers, are included in illustrated descriptive bulletins you can get from Newcomb-Detroit, 5753 Russell St., Detroit 11, Mich. The company engineers, manufactures and installs cleaning and finishing equipment.

For more data, circle 101 on colored card.

Test Service. Testing finishes and protective coatings for comparison and to find out if they will meet certain requirements—this is an independent service you can learn about by writing South Florida Test Service, 4201 N. W. 7th St., Miami 34, Florida.

For more data, circle 102 on colored card.

Tack Rags for wiping and picking up dust are available in celophane envelopes or in bulk. Additional information can be obtained from Ideal Chemical Co., 1499 Dean Drive, South Euclid 21, Ohio.

For more data, circle 103 on colored card.

Stephens Joins Un. Chrom. Ltd.

United Chromium Ltd., Canadian affiliate of United Chromium, Inc., announces that R. W. Stephens has joined the company as a sales and service engineer. He will serve the Canadian metal finishing industry with the complete line of Unichrome plating processes, materials, equipment, organic coatings, and Ucilon Protective Coatings.

"Lacquer Information" on Move

The Mobile Lacquer Information Center of Hercules Powder Co. is again on the move and will visit eight southern and midwestern states before it returns to Wilmington, Delaware. The latest developments in lacquers and production finishes will be brought to the attention of industry in 16 cities.

The Two Words to Remember are

CLAREMONT FLOCK

—for Industrial Finishing Surfacing, Lining, Sound-deadening, and Decorative Facing!

WRITE FOR SAMPLES, COLOR CARDS AND DETAILS

CLAREMONT WASTE MANUFACTURING COMPANY
The Country's Largest Manufacturer of FLOCK
CLAREMONT, NEW HAMPSHIRE

Industrial FINISHING Editorial

Sales Ammunition to Sell Finishes

★ The salesman is the catalyst between the seller and the buyer, transforming supply and demand into productive activity.

In spite of the many learned tomes on the subject, salesmen in the industrial finishing field often persist in using methods which are somewhat antiquated. Regardless of the merit of the product, regardless of the polish of the sales-talk, regardless of all the preliminaries, the end result is invariably "Do you need any lacquer today?" or words to that effect.

The triumphant culmination of a lengthy visit is a request for a sample with the vague promise that it will be tested in the near future. After it is delivered, the sample frequently is set upon a shelf to gather dust, and in spite of repeated call-backs, it is finally discarded. We must remember that every sample presented for test represents a cumulatively high cost to both the supplier and the user. Samples play an important role, but their value has been overemphasized.

One of the dominant traits of today's consumer is the expectation that each new product released should be better than its predecessor. As a result, the individual behind the desk is constantly searching for ways and means to improve his company's product. Therefore, *the salesman with something novel, something different, something superior is indeed a very welcome visitor.* However, the welcome mat can be worn thread-bare if that certain something is not presented in a manner which will quickly satisfy the busy executive in a minimum of time with a most lasting impression. This can be easily achieved through a visual sales presentation.

What is a visual sales presentation? It is the conversion of the intangible to the tangible. It is the clothing of the skeleton sales talk with weight and emphasis by demonstration rather than by description.

The wise salesman, as has been repeated time and time again, should arm himself with adequate sales ammunition before making a call upon a prospective customer. It is not sufficient to know merely what the prospect is manufacturing, or the fact that you were a classmate of his brother-in-law (that helps more than we care to admit). Of greater importance is the knowledge as to the type of finish used and problems inherent in that particular finish, or in the finishing system being used. This information can be readily obtained on the initial call. As a follow up, the visual sales presentation is then employed.

One can readily visualize the pleased surprise of the purchasing agent when, instead of a flow of words, he is shown a panel coated with the finish under discussion. Even better than a panel, if at all possible, is to obtain the actual item to be finished, or a part thereof. Nothing then is left to be imagined. This is especially true if

---

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

HERE'S THE *ECONOMICAL* WAY TO PAINT SPRAY BOOTH *EFFICIENCY*

...With RP Paint Arrestors

This converted paint spray booth not ony brought real savings in installation and maintenance costs, but also practically eliminated "downtime." Your plant too, can benefit with RP Paint Arrestor pads to control paint overspray, economically and efficiently.

RP ... PRODUCTS OF RESEARCH

(Photo Courtesy American-Standard, Elyria, Ohio Plant)

RESEARCH PRODUCTS CORPORATION

DEPT. 34, MADISON 10, WISCONSIN

a new type of finish is being introduced. The sales impact is greatest at this particular moment, and the purchaser has at his disposal most of the important facts necessary to facilitate a favorable decision.

Through the years paint manufacturers have developed coatings suitable for every possible industrial use. As the salesman makes his calls, it would be advantageous for him to carry panels or samples of items finished with these coatings to indicate their wide practical application for every conceivable purpose. The purchaser can then determine with the least possible expenditure of time and money, the finish best suited for his needs. In addition, in reviewing the various finished panels that the salesman may choose to show him, he might very well see something which could be adapted to his use.

The peculiarity of the industrial finish is such that while it definitely is not an intangible, it is nothing which the buyer can see at the moment of sales presentation. Too much is left to the efforts of the salesman and the imagination of the buyer. Let us, therefore, eliminate the slightest possibility of missing a sale, or being remiss in our service to the customer, by showing rather than telling.—*Louis Vigushin.*

L. H. Miller With Nubian Div'n.

Lowell H. Miller has been appointed industrial sales representative for the Nubian Industrial Division of The Glidden Co. Mr. Miller—known to his friends and associates as "Ted"—brings to his new post at Nubian more than three decades of experience in production line finishing.

Mr. Miller, who joined Glidden last year as a Pacific Region industrial sales representative in Los Angeles, will make his headquarters at the Nubian Industrial Division offices at 1855 N. Leclaire Ave., Chicago.

Burn and Liquor Proof Finishes on Hardwoods

★ "Super-finishes" for genuine hardwoods were a hit of the 21st Annual Meeting of the Fine Hardwoods Associaten last November at the Furniture Club of America in Chicago.

Cigarettes were allowed to burn completely to ashes, and drinks were spilled and left on beautifully finished panels of fine hardwoods as Association members had fun running their own "tests" on newly developed protective finishes for hardwoods.

The handsome panels of oak, walnut, mahogany and other lighter woods were completely undamaged by the 2-day testing spree.

The cigarette-resistant plywood construction, and new finishes, offer all the inherent natural aesthetic and physical properties of genuine hardwoods in combination with new resistance to various forms of marring.

Also on display were a French Provincial style piano with cigarette-resistant cherry top and shelf and liquor-resistant finish now being tested for consumer reaction, and sample occasional table tops of the new hardwood plywood in various species with finishes that withstand hard use and abuse by cigarettes, drinks, and hot objects.

John H. Huling, Assistant Secretary of the Association, also got up separate displays of laboratory test panels showing the resistance of new finishes to damage by various forms of abuse.

The "test-it-yourself" displays were used to illustrate a progress report made to the Association membership on research being done on super-finishes that offer the rich, unduplicated qualities of genuine hardwoods with new durability. Many extremely durable finishes are already available, and research is being continued.

CVC QUALITY
End Flocoat Problems
WRITE . . .
Get the help we are giving others.
Quality Custom Finishes Since 1865
CINCINNATI VARNISH CO.
CINCINNATI 12, OHIO

CRS
METAL FINISHING CONSULTANT
With a well-known record of achievement. Let me help you with your problems.
Since 1928
C. Raymond Syer
P. O. Box 3273, Beverly Hills, Calif.

You Interested in Mar Resistance?

★ Apparently many users of industrial finishes are not particularly interested in the mar resistance of the coatings they put on their products. This subject is rarely mentioned when the performance of coatings is discussed with paint salesmen.

The mar resistance of a finish is directly related to the hardness and toughness of the surface. This property is especially important when the film is to be subjected to any kind of abrasion, scuffing, bumping, smearing, etc., that is not severe enough to rupture the film. If the shock is severe enough, as when a sharp piece of steel is thrust against the coating, the film will be broken. Its adhesion

THE PRODUCTION FINISHES THAT LIKE TO BE COMPARED

Compare NEW PERIOD feature for feature with any other finishes on the market and you'll understand why we call it "the finish that likes to be compared."

- Fillers and Stains
- Lacquers—Clear and Semi-Gloss
- Sealers
- Lacquer Enamels—Flat and Gloss
- Synthetic Enamels

Quality Isn't Just Luck

Write for 5 Gallon Working Sample at Drum Price

MANUFACTURERS OF FINE WOOD AND METAL PRODUCTION FINISHES

Established 1917

NEW PERIOD Production Finishes

NEW YORK WOODFINISHERS' SUPPLY CO., INC.

109 Imlay Street Brooklyn, N. Y.

will then largely determine how severe the damage is.

If the finish can withstand mild shocks without showing any effect it will retain a smart uniformly new appearance for a long time. If not it will soon be a mass of scratches and scuff marks. Manufacturers of such things as tools, office machines, luggage cases and appliances are aware of these facts and put a reasonably hard coating on their products.

Of course, mar resistance is not the only factor to be considered in formulating a protective or decorative coating. If the finish is too hard, its flexibility or adhesion may suffer; therefore a compromise must often be made.

If a finish is quite soft, hardening it a little won't help much to prevent marring. If the finish is fairly hard to start with, a slight or moderate increase in hardness may put it "over the hump" and may increase its mar resistance considerably. For example, it is quite common to see objects coated with a baked alkyd-urea or alkyd-melamine finish which, while not soft, can readily be scratched with a fingernail. Likewise, the finish can be scratched by such things as many plastics, wood and shoes. If the proportion of urea or melamine (which hardens the film) were raised somewhat, so that the baked film could not be scratched by a fingernail, an appreciable increase in mar resistance would be attained.

Those manufacturers who want, but are not getting, mar resistant coatings should investigate and see if a slight increase in hardness will enable their products to keep their new look longer.—*E. V. Goldstein.*

Customers Complaints; Causes; Remedies

★ Each year manufacturers of organic coating materials spend thousands upon thousands of dollars for advertising programs. But unfortunately, much of the good will developed can be lost and the advertising dollar wasted *if custmoer complaints are improperly handled.* All too often these complaints are filed away and forgotten, or delayed to such an extent that an answer at this late date no longer has any value.

The salesman of industrial finishes carries a great responsibility, particularly in those concerns that do not supplement their sales force with technical service personnel. The foundation of reputation and customer good will is dependent on those sales representatives. With the complex nature of many of today's laboratory formulations, it cannot be too strongly emphasized that proper handling of the material, in most instances, will eliminate sources of customer irritation.

All too often a salesman will reply to a complaint with, "I don't know why it is giving trouble; the material works all right in our laboratory." These and similar words have probably brought many users of industrial finishes to approach a state of apoplexy. To answer a complaint in this manner, when possibly a finishing department's complete production is being curtailed for the want of a possible solution, certainly does not endear the manufacturer with the purchaser. . . . And, of course the return of rejected materials is an unnecessary expenditure.

To procrastinate on an answer to a complaint is another means of arousing a customer's wrath. When troubles and problems occur an immediate solution is necessary. An industrial finisher usually cannot afford to wait for delayed answers.

Most lacquers and enamels produced for the industrial finishing industry are designed for particular applications and uses. Thus each requires a definite handling procedure. Tactful and educational approaches by the sales or technical representatives can do much to maintain the reliable reputation of the manufacturer.

The sales force should be studied. Are these men who are entrusted with maintaining reputation and good will, which in many instances has taken years to be build up, qualified to handle the complex problems which occur in the finishing plants? Are complaints being answered by the laboratory promtply and efficiently? The answer to these questions can determine whether the full value of the advertising dollar is being utilized. —*A. A.*

MORSE
VERTICAL DRUM TRUCK
ROCK-A-DRUM

Picks up 55-gal. drums, rolls them over for side draining. Becomes a rugged stand on 3-in. wheels.

Morse Mfg. Co., Inc. 763 W. Manlius Street E. Syracuse, New York

Serving **THE SOUTHEAST**

- LACQUERS
- SEALERS
- FILLERS
- TONERS
- GLAZES
- PIGMENTED WIPING STAINS
- NGR STAINS

Complete Technical Service At Your Disposal

SNYDER BROTHERS COMPANY
Manufacturers of Quality INDUSTRIAL LACQUERS
P. O. BOX 548 — TOCCOA, GEORGIA

LOW COST THINNERS

Ask for Quotations!

- **FORMULATED TO MEET ANY SPECIFICATION**
- **QUALITY AND UNIFORMITY GUARANTEED**
- ***Specialists in Thinners for* Leather, Metal Etching, Polystyrene Plastics**

Shipped in our own Tank Trucks, Drums or 5 gal. Cans

Synthetic Reducers and Retarders

Write or phone for technical information.

ELI-BEE CHEMICAL CO., INC.

HANOVER, N. J.
Phones WHippany 8-0194; 8-1277
Prompt service and deliveries.

WATER WHITE LACQUERS & SEALERS HIGH SOLIDS AND NON-YELLOWING

***for:*— MODERN FURNITURE**
and all light shades
- **LOW COST**
- **COLD SPRAY**
- **VARIOUS SHEENS**
- **EXCELLENT BUILD**
- **MAR RESISTANT**

Atlas Powder in New Offices

The new general offices of Atlas Powder Co. are at Concord Pike and New Murphy Road, Wilmington 99, Delaware. Telephone, Wilmington 8-6511.

Hughes to Northwest Chemical

Joseph R. Hughes has joined the sales and engineering staff of the Northwest Chemical Co., to service accounts in Massachusetts and Rhode Island. Mr. Hughes has worked for 20 years with the metal finishing industry.

Men Travel for Initiation Into M. & W. Co.'s 25-Year Club

A transcontinental initiation into Maas & Waldstein Co. 25-Year Club was held when men from the company's Newark, N. J., Chicago and Los Angeles plants were simultaneously welcomed into the quarter-century group in a recent ceremony at the Essex House Hotel, Newark, N. J. It marked the first time in this paint manufacturer's 79-year history that representatives from all three of its plants participated in a group initiation.

The new members included Mr. Charles L. Berry, Manager of the company's Mid-Western Industrial Division in Chicago, Mr. Joseph Stelker of the Newark plant and Mr. Leo Pucacco of the company's Smith Davis Division in Los Angeles.

Each received a gold wrist watch and lapel pin commemorating his 25 years with Maas & Waldstein Co.

Dr. G. Klinkenstein, left, President of Maas & Waldstein Co., welcomes Mr. Charles L. Berry into the company's 25-Year Club, after presenting him with a gold wrist watch and lapel pin commemorating Mr. Berry's 25 years with the firm. At right is Robert F. Magnus, Treasurer.

Random Comment on the Industrial Scene

(Continued from page 6)

of tiny glass cells, each of which is a minute dead-air insulating space.

But its special secret is that these cells are sealed. Because these sealed cells are waterproof and vapor-proof, Foamglas stays dry even under severe operating conditions and, thus, retains its original insulating value.

* * *

A new calking compound that contains Alcoa aluminum flake pigment has just been placed on the market. The aluminum pigment particles in the compound arrange themselves in parallel layers and also "leaf out" forming an aluminum colored surface. This surface layer reflects the chemically active rays of the sun to retard oxidation and the other pigment layers exclude air and moisture. This slows the drying out of the calk and keeps it elastic and fresh. It is marketed in a cartridge under the name of Aluminum Handi-Calk.

* * *

Automobile Grilles. A study just completed by the American Zinc Institute reveals that 62% of the 1955 autos make use of zinc die-cast grilles. Zinc alloy castings offer high impact strength, low-die cost, dimensional accuracy, and are easily chrome plated.

* * *

Aluminum Low Cost. Taken by the pound, you can buy more sheet aluminum (of a specified gauge) than the same dollar value for any other metal. This, coupled with aluminum's light weight, rust and corrosion resistance, ease of fabrication, and smart appearance, has brought it to the amazing acceptability that it now enjoys in industry.

I.F.'s Associate Editor Speaks at Cleveland Meeting

P. C. Bardin, traveling associate editor of *Industrial Finishing*, was guest speaker at the Feb. 21 meeting of the Process Industries Division of the Cleveland Engineering Society in Cleveland, Ohio. Mr. Bardin's talk included first-hand information on the latest developments in surface finishing for all kinds of products in all kinds of factories—particularly surface preparation and methods of applying and curing organic protective and decorative coatings, such as paints, enamels, lacquers, varnishes and new synthetic materials, for products made of metals, woods, plastics, rubber and fiber.

Supplementing Mr. Bardin was a 3-member panel consisting of Dr. S. P. Wilson, vice president of Varnish Products Co.; C. A. Litzler, president of C. A. Litzler Co.; and Dr. E. G. Bobalek, professor of chemistry at Case Institute of Technology. A quiz period followed Mr. Bardin's talk.

Atlas Electric Devices Co. Moves to New Plant

The new plant of Atlas Electric Devices Co. is located at 4114 N. Ravenswood Ave., Chicago 13, Ill. It will provide expanded facilities for research and manufacturing of Fade-Ometers, Weather-Ometers, Launder-Ometers, Atlas Scorch Testers, and Atlas Accelerators.

Lammiman, of DeVilbiss, Dies

Lewis W. Lammiman, 59, director of technical services for the DeVilbiss Co., Toledo, Ohio, manufacturer of spray painting equipment, died Feb. 27.

For several years, Mr. Lammiman appeared as a lecturer in furniture finishing at the short course held at North Carolina State College. He was a member of the DeVets, 25-year employee organization at DeVilbiss.

Binks Spray Painting School

The spring sessions of the Binks Spray Painting School will be held April 4 to April 8 and May 2 to May 6. Anyone interested in, or connected with, the application of paint and coatings is eligible to attend this free school.

GAS-TIGHT! FOG-PROOF!
GOGGLES

PROTECT EYES AGAINST PAINT SPRAY, dust, fumes, gas, smoke, etc. Can be worn with any make respirator or mask. Soft, pliable rubber frames give air-tight fit on any shape face. A few drops of water on inside of lenses keep fog off by a simple nod or shake of head. Sample $2.00 postpaid! Order today!

H. S. COVER, South Bend, Indiana

Body Bros., Inc. Has Fifth Year

April, 1955, marks the fifth anniversary of Body Bros., Inc., of Bedford, Ohio, manufacturer of industrial finishes.

Mr. L. F. Body, president, and his brother, Robert, vice president, pooled their talents to start the company in 1950. Both had grown up in the business —one with previous experience in sales and management, the other with experience in sales, production and paint technology.

Under their direction a complete line of industrial finishes has been developed which includes aluminum paints, primers, baking finishes, air drying finishes, specialty and hammer finishes.

Early in 1952, Charles J. Pecoy joined the organization as sales manager, having had a number of years experience in sales and management work in industrial paints. Robert Began, formerly in technical production work with the Body organization since its beginning, has recently been appointed Sales Representative.

Offers Automation Systems

A group of Cleveland investors headed by R. E. Britt has entered the automation field with the purchase of the controlling interest in The Tipp Mfg. Co., Tipp City, Ohio.

The company manufactures conveyor systems. It is the originator of the cable-type overhead conveyor, sold under the trade name "cable-way." The line includes complete automation systems for moving materials above floor level, using cable, chain, roller or belt conveyors.

R. E. Britt, new president of The Tipp Mfg. Co., has had 25 years of experience in the conveyor field.

IDEAL TACK RAGS
FOR A PERFECT FINISH
Bulk or Bagged
IDEAL CHEMICAL COMPANY
1499 Dean Drive, South Euclid 21, Ohio

TOMORROW'S Products Tested TODAY
A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information
SOUTH FLORIDA TEST SERVICE
EST. 1931
4201 N. W. 7th St. Miami 34, Fla.

Bennett Advanced at Diversey

Myron T. Bennett has been appointed Promotional Manager of the Metal Industries Dept. of The Diversey Corp., Chicago. Bennett previously was General Manager of the Spec-Kem Co., a division of The Diversey Corp., supplying special chemical compounds to government agencies.

In his new capacity, Bennett will direct the sales of Diversey's fastest growing department. Recent developments by Diversey laboratories in the field of metal processing have resulted in new production economies, advanced processes and outstanding products. Plans for the future include research and development of still better processing methods and products.

Star Chem. Co.; Three New Men

Star Chemical Co. (wood finishing materials) announces the addition of three new technical sales representatives, as follows:

Lionel Smith: Ind., Ohio and Pa.

Harold F. Fiedler: Mich., Wisc., Ill., and Iowa.

Joseph Grobarek: local Chicago territory.

CLASSIFIED ADVERTISING

The rate on ads appearing in this department is $1.00 per line of 6-pt. light face type, per insertion. Minimum charge, $5.00. Ads set in 8-pt. extra bold face type cost $2.00 per line, per insertion.

INDUSTRIAL PAINT SALESMAN

Wants to change. $200,000 territory and 15 years' industrial experience offered for most substantial and reliable offer. Address IF-301, care Industrial Finishing.

CONSULTANT SERVICE METAL & WOOD FINISHING.

Thirty years applied research and practical application. Unbiased reports. Not connected with any finishing materials company. Write L. R. COLE, N. 902 Vista, Spokane 62, Washington.

POSITION WANTED

With reliable finishing house as wood furniture sales serviceman. Have practical and technical knowledge of all phases and new methods of color styling on all types of furniture. Must be Michigan territory and adjoining states. Can furnish excellent references. Address IF-302, care Industrial Finishing.

POSITION WANTED.

Manager in finishing and paint department wishes to affiliate and make himself available to a metal manufacturing company. Experienced in handling large group of help in spray painting and specialist in all kinds of automatic dipping. In or out of town. Also did Government contracts. Pennsylvania preferable. Address IF-303, care Industrial Finishing.

POSITION WANTED.

Expert Foreman Finisher desires connection with reliable concern. 25 years' experience as foreman. Have knowledge both technical and practical in all finishing phases. Capable of meeting schedules with high quality finish. I harmoniously manage any number of people. Can furnish best of reference. All replies will be treated in confidence. Address IF-300, care Industrial Finishing.

CAN YOU WRITE?

If you can write a letter or simple report on using, servicing or selling finishing materials or equipment, we have an interesting proposition for you. Address IF-234, care Industrial Finishing.

FINISHING SUPERINTENDENT WANTED.

Experienced in modern methods of finishing case goods on conveyor line. Wonderful opportunity in a large plant in the middle west. State qualifications, references and complete personal data. Address IF-304, care Industrial Finishing.

FINISHING FOREMAN.

Missouri furniture factory requires a first-class finishing foreman. Company well established making nationally-known line. Top pay with bonus to man of seasoned experience in on-time production of quality furniture. Give full qualifications, past 10-year employment record, including present position and salary. Present employer will not be contacted. Address IF-305, care Industrial Finishing.

LABORATORY ADMINISTRATOR.

As a major manufacturer of industrial finishes located in the Midwest, we need a man with imagination and technical ability in connection with our laboratory expansion program. This man must have an educational background in chemistry, and experience in industrial coatings, as well as the ability to organize, direct, and coordinate all phases of laboratory activity. We are looking for a man between 30 and 42 years of age. For this work, we will pay $10,000 per year. Our employees know about this ad. If you feel you can qualify, send a complete abstract of your education and experience. Address IF-307, care Industrial Finishing.

WANTED.

Man capable of scheduling and supervising production of lacquer and lacquer enamels in completely modern plant. Established, moderate-sized company in Philadelphia. Excellent advancement possibilities. Reply giving personal background and industrial experience. Address IF-306, care Industrial Finishing.

SALESMEN WANTED.

Industrial salesmen with experience. Territories open in Eastern and Central Zones. Reply to PRATT & LAMBERT-INC., Industrial Division, Buffalo 7, New York, giving qualifications.

SALESMAN—INDUSTRIAL FINISHES.

Well established and expanding manufacturer in the Newark area will consider an experienced man with proven record of achievement selling industrial finishes. Our proposition and an exceptional opportunity for security and high earnings allow us to insist on highest qualifications. Open territory. Excellent lab cooperation. Answer in detail. Replies confidential. Address IF-290, care Industrial Finishing.

TECHNICAL SALES REPRESENTATIVE.

To keep pace with our growing business, we need a man with ability, experience and imagination in selling industrial finishes, a man who can envision the best type of finish for a particular application and who has the technical skill to write intelligent reports on finishing procedures of prospective customers and the ability to recommend the proper methods and products. This individual must possess a degree of aggressiveness and the interest to keep pace with the newest developments in coatings. If you think you can qualify, send a resume of your educational background and experience. Address IF-308, care Industrial Finishing.

SOLVENT CLEANING SERVICE

Dirty lacquer solvents cleaned for reuse by distillation. Cost runs 14c to 19c per gallon. Substantial savings can be realized within 200 mile radius of Louisville. Write us for details.

KENTUCKY COLOR & CHEMICAL CO.
600 N. 34th St., Louisville 12, Ky.

PAINT STRAINERS

For straining lacquers, enamels, paints. Made of heavy paper with cloth inserts in different meshes. 6-in. diameter conical shape. Write for catalog and samples. GERSON CO., Box 175, Mattapan 26, Mass.

WANTED.

"RECLAIM" Enamel, high quality, urgently needed, quantities up to 50 drums per month required by Wisconsin Industrial Finishes Distributor. Address IF-309, care Industrial Finishing.

WANTED TO BUY.

Will buy your dirty Thinners and Solvents. Send samples or letters giving approximate contents and solids. Address THE JOHANN CO., 8547 S. Ashland Ave., Chicago, Ill.

FORD CUPS

THE VOL-U-METER COMPANY
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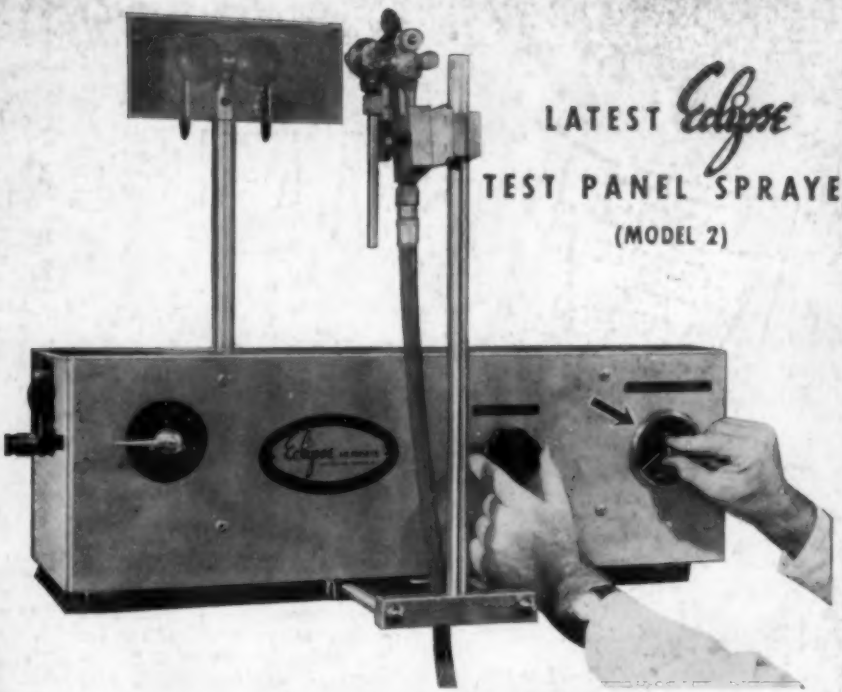

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